PIT AND QUARRY

APRIL 1953

In this Issue . . .

Convention Reports of National Sand and Gravel Assn., National Ready Mixed Concrete Assn., A.I.M.E., American Concrete Institute American Concrete Pipe Assn.• Dravo Heavy-Media Separation of River Gravel • Cooley Produces Gravel with Converted Gold Dredge

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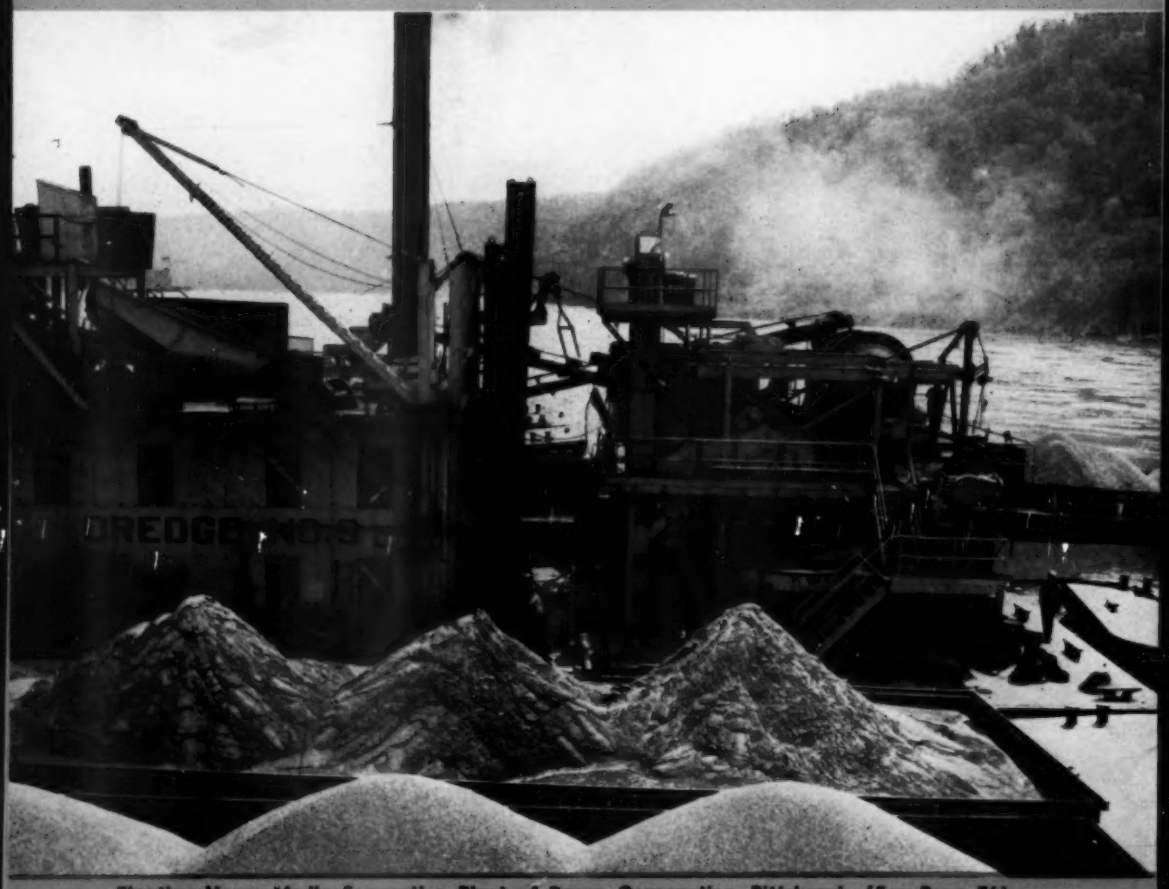
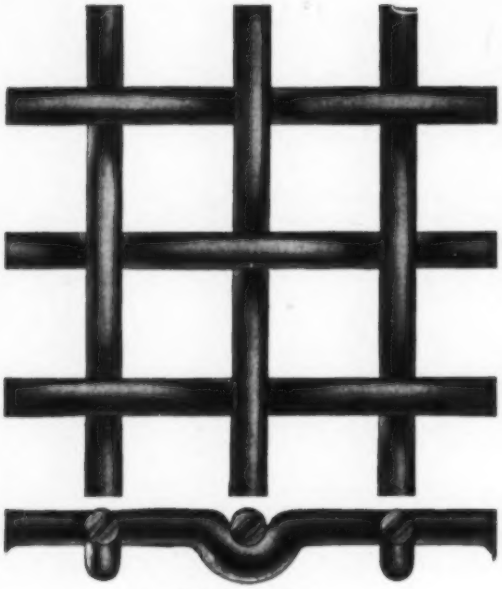
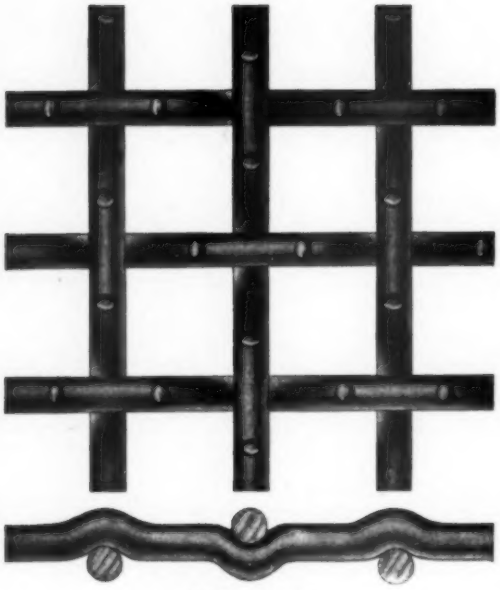


Floating Heavy-Media Separation Plant of Dravo Corporation, Pittsburgh. (See Page 76)



STA-SMOOTH

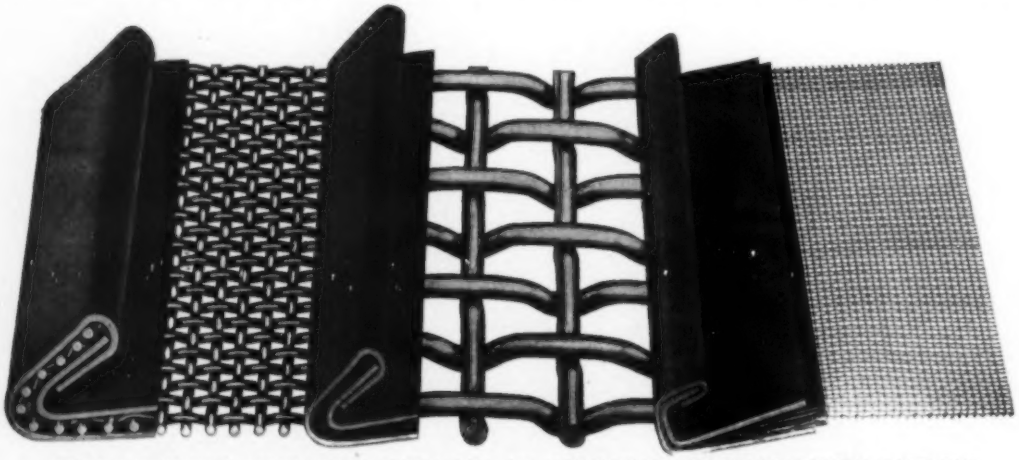


ARCH-CRIMP

SUPER-LOY VIBRATING-SCREEN SECTIONS

SUPER-HARD - - - SUPER-TOUGH - - - SUPER-STRONG

SUPER-LOY SCREENS are made from a high carbon steel specially alloyed to withstand abrasion longer — endure vibration better — resist fatigue to the utmost

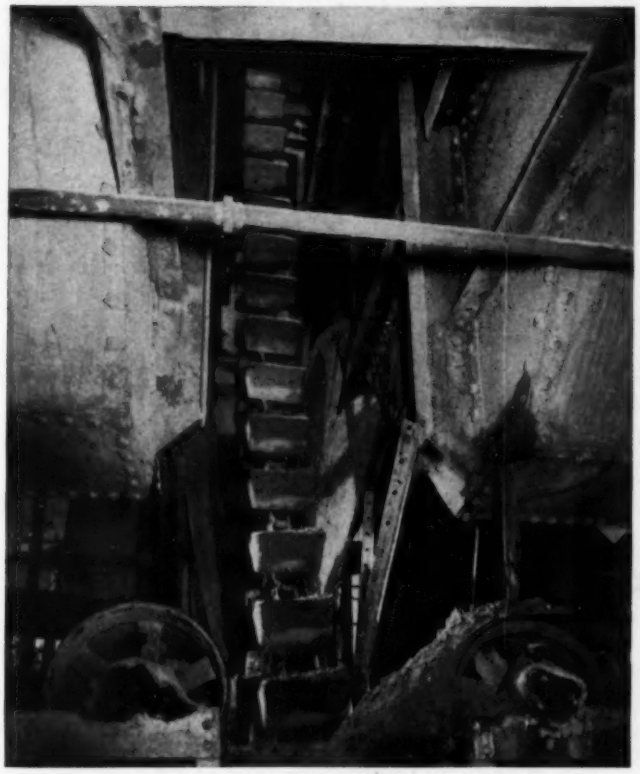


ORDER LUDLOW-SAYLOR HOOK-STRIPS FOR ALL TENSIONED VIBRATING-SCREEN SECTIONS.

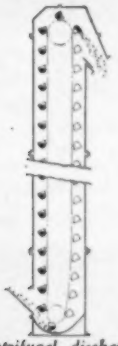
THE LUDLOW-SAYLOR WIRE COMPANY

634 S. Newstead Ave. **ST. LOUIS 10, MO.**

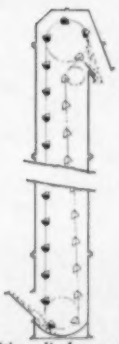
13 types...4 basic designs—
to meet your elevating requirements



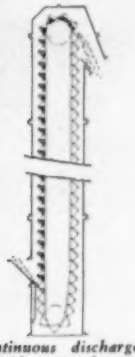
Up to 700 tons of sand and broken stone are elevated per day in this Link-Belt inclined centrifugal discharge bucket elevator.



Centrifugal discharge for free-flowing, fine or loose materials with small to medium size lumps.



Positive discharge for light, fluffy, fragile or any materials that tend to stick to the buckets.



Continuous discharge for wide range of materials — light to heavy, small to large, abrasive lumps.

Internal discharge for gentle handling of small articles such as pellets, rivets, seeds, castings.

Let LINK-BELT recommend the bucket elevator best-suited to your needs

WHERE large or small quantities of bulk materials must be elevated in limited space, a bucket elevator is the equipment you need in most cases. And, in every case, you'll find the one that can do the job for less in the complete Link-Belt line.

Link-Belt builds a type and size of bucket elevator for every requirement. Included in the 4 basic designs are 13 types of bucket elevators designed to suit a variety of materials. A wide range of sizes on chain or belts is also available.

Other Link-Belt engineering extras: Rigid, jig-built casings are self-supporting requiring only occasional lateral tie-ins depending on height. Periodic inspection is speeded with easy access to both head and boot. Chain or belt tension is maintained at all times with simple screw or gravity take-ups. You can get complete engineering information from the Link-Belt office near you.

LINK-BELT

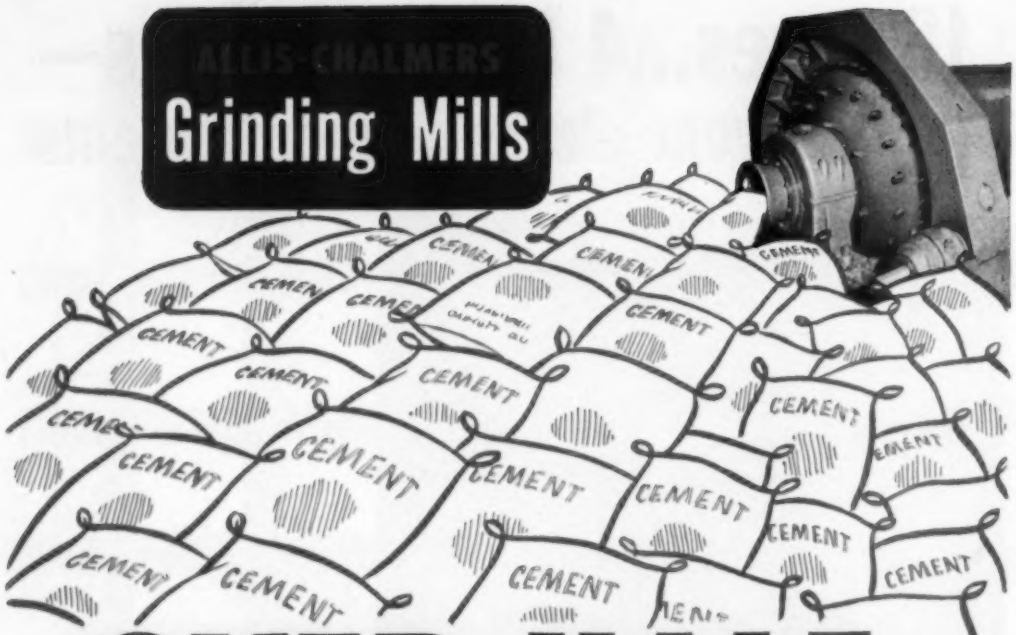
BUCKET ELEVATORS

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle, Toronto, Springs (South Africa), Sydney (Australia). Sales Offices in Principal Cities. 13,213

PIT AND QUARRY, April, 1953, Vol. 45, No. 10. Published monthly by the Pit and Quarry Publications, Inc., 431 S. Dearborn St., Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $3 additional for each year. Single copy 25 cents. Entered as second-class matter February 28, 1902, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

ALLIS-CHALMERS

Grinding Mills



OVER HALF

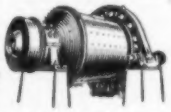
of all Cement produced in the U.S. is Ground in Allis-Chalmers Grinding Mills!

CEMENT PRODUCERS specify Allis-Chalmers grinding mills because they have proved so profitable on the job. In fact, 7 *out of 10* A-C mills sold today are repeat orders!

When you specify Allis-Chalmers grinding mills you profit by A-C's *unsurpassed* experience, engineering, testing, erection and parts service. You can be sure of getting the right size and type mill for your job. A-C has built over 4300 grinding mills covering every type of application.

Get more facts from the A-C representative in your area. And write Allis-Chalmers, Milwaukee 1, Wisconsin, for Grinding Mill Bulletin 07B6718A.

A-3996 **ALLIS-CHALMERS**



A-C builds single and multi-stage grinding mills in a complete range of sizes. Special mill modifications and grinding circuits can be engineered to suit your application.

Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Vibrating Screens | Jaw Crushers | Gyratory Crushers | Hammermills | Kilns, Coolers, Dryers

A better answer to an old drive problem

NEW BELT GIVES SUPER STRENGTH

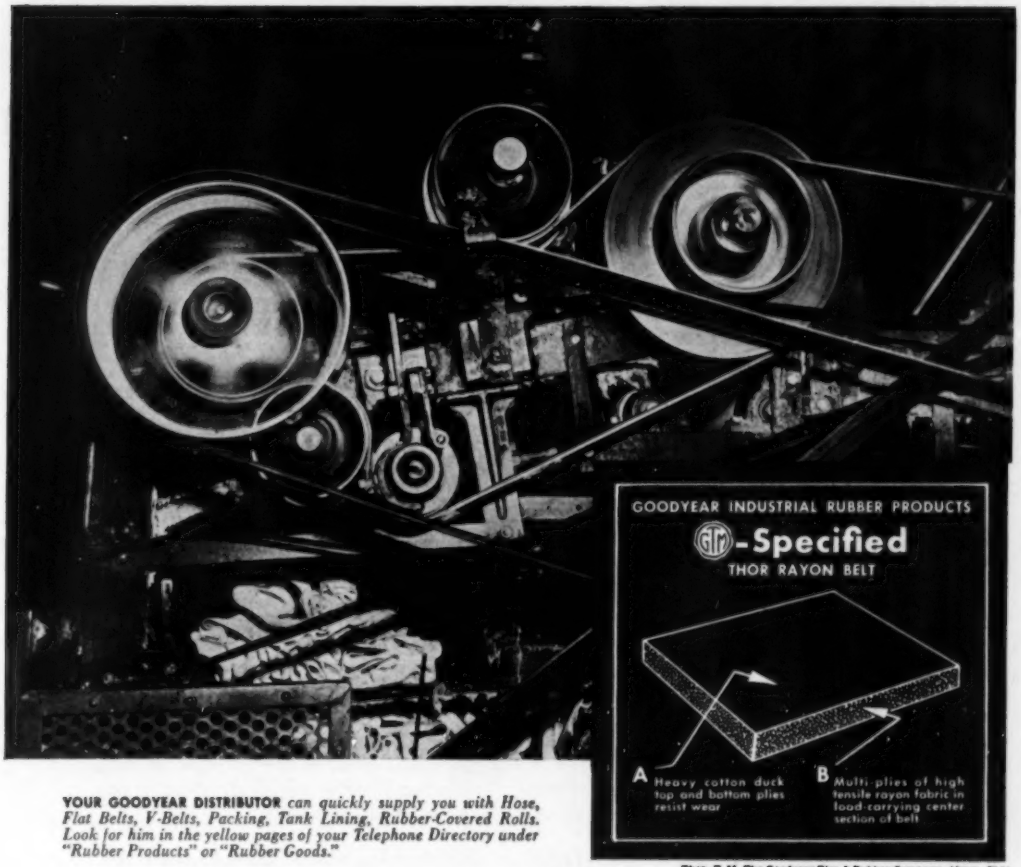
because it's built with

RAYON

ON many heavy-duty transmission belt drives — crushers, cone drives, beaters, pug mills, saws and the like—it's often impossible to apply an endless belt. Yet such drives often need more strength than you find in roll-lot, ply-type belts. Thanks to the G.T.M. — Goodyear Technical Man — there's now an answer to the problem—the NEW THOR Rayon Belt, made endless *and* in cut lengths. Look at these other advantages:

Stretch 30% less than ordinary ply belts • Outstanding ability to hold fasteners • HP ratings 10% above standard silver duck plied belts • Thinner cross-section can be used on smaller pulleys • Reduced bending stress • Mildew-inhibited throughout like all Goodyear belts.

Thoroughly tested in the field, this new, super-strong, long-lasting belt is now available for your problem drives where endless belts cannot be applied. Ask the G.T.M. about the NEW THOR Rayon Belt—see your Goodyear Distributor—or write Goodyear, Mechanical Goods Division, Akron 16, Ohio.


GOODYEAR INDUSTRIAL RUBBER PRODUCTS
GTM-Specified
THOR RAYON BELT
A Heavy cotton duck top and bottom plies resist wear
B Multi-plies of high tensile rayon fabric in load-carrying center section of belt

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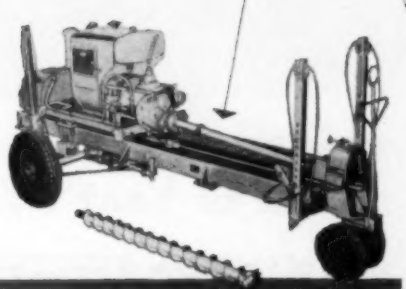
TRACTOR MOUNTED VERTICAL

Multi-Use Unit Saves You Time on the Job —and Between Jobs

Especially designed for jobs that require maximum mobility and fast drilling of many holes. The carefully engineered, rugged drill unit is driven by the standard farm type tractor. The auger is raised, lowered and fed into the work by a built-in hydraulic cylinder. Handles augers up to 6 inches or more in diameter. Augers are in 6-foot sections, available with any standard connection, for extension to any desired length. Augers can be added in just a few seconds



Self-Propelled HORIZONTAL HYDRAULIC

You'll drill more holes per day with this highly mobile unit, because you spend *more* time drilling, *less* time moving from hole to hole. Saves money, too,—you don't have to tie up a truck to move it. Has 32-H.P. air-cooled gasoline engine with power take-off and hydraulic pump. Augers are driven into the bank by a hydraulic piston. Standard auger equipment includes seven 6′ sections (42′ total) for drilling holes up to 6″ diameter. Wheels and axles can be easily removed to permit low level drilling.

STANDARD VERTICAL

Ideal for drilling blast holes or doing exploratory work in clay, gypsum, asbestos, shale, and other materials.

Simple, rugged and very easy to use. The weight of the engine forces the auger and cutter head into the material being drilled. Large hand wheel raises and lowers the power assembly easily. Mast can be lowered when moving unit. Available with 6½ H.P. or 12 H.P. air-cooled gasoline engine. Standard auger equipment includes 6-foot section for 2½″ or 3″ holes. Other sizes also available.

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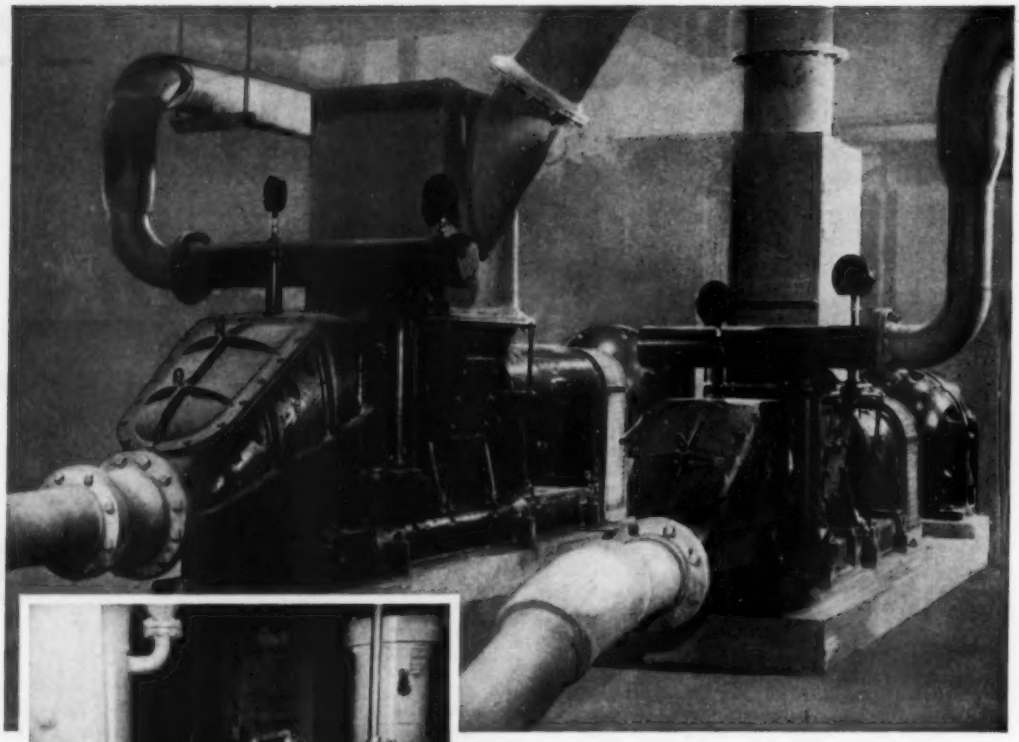

Top photo: Two Fuller-Kinyon Pumps installed in a cement plant. One conveys 80 tons of raw materials and the other 360 barrels of finished cement an hour. Lower photo: Fuller Rotary Single-stage Compressor furnishing air for the raw material pump, capacity 1044 c.f.m., 26-lb. pressure.

A combination that's hard to beat . . .

FULLER-KINYON PUMPS and FULLER ROTARY COMPRESSORS

FULLER-KINYON: The system that is recognized as the outstanding means for conveying many types of dry, pulverized materials from processing equipment to storage bins and silos; from storage to packer bins, process, cars, ships, and barges. Also used for unloading from cars, ships, and barges. For certain requirements the system can be remote or automatically controlled. It meets every demand placed upon it—full capacity can be economically maintained up to the maximum conveying distance. Safe, clean, efficient conveying.

FULLER ROTARY COMPRESSOR: This compressor delivers a uniform flow of air, without pulsations, discharging the air directly into the Fuller-Kinyon Pump, without unloaders or air receivers. Connected thus, the power input conforms automatically to the work-load (back pressure) of the conveying system. Air—where and when needed to do the work in an efficient and economical manner.

Why not take advantage of Fuller's 26 years of experience in the field of conveying the next time you have a conveying problem? We'll be glad to work with you and give you the benefit of this experience.

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26 YEARS' EXPERIENCE IN PNEUMATIC CONVEYING
PIONEERS OF HIGH-EFFICIENCY VANE-TYPE ROTARY COMPRESSORS

P-140

How do you measure the look in a puppy's eye?

The preliminary precautions have been taken. A well-recommended kennel. A healthy litter. A breed that takes well to youngsters.

Now it's up to the boy to choose.

How will he decide? Perhaps by the look in a puppy's eye.

Chances are, you'll be buying Multiwalls soon again. You've done as every good buyer does. You've considered the reputation of the various suppliers. You've investigated the quality of their product. You've set down your specifications to the last fraction.

Now you pause to think again of the fellow who will make the final choice—your customer. How will he decide? One consideration may well be "the look in a puppy's eye." To say it another way, the sales appeal of your package.

Men who know Multiwalls . . . who buy more than 85 per cent of all Multiwalls made . . . give great weight* to good printing and design.

Union's art directors have concentrated experience. They know how to give your Multiwall package the look it needs to stand out among competition. Volume purchasers of Multiwalls recognize this. They are calling on Union for a greater share of their Multiwall needs.

More so every day . . .

IT'S UNION FOR MULTIWALLS

TRADE MARK UNION

*August, 1951 research study.

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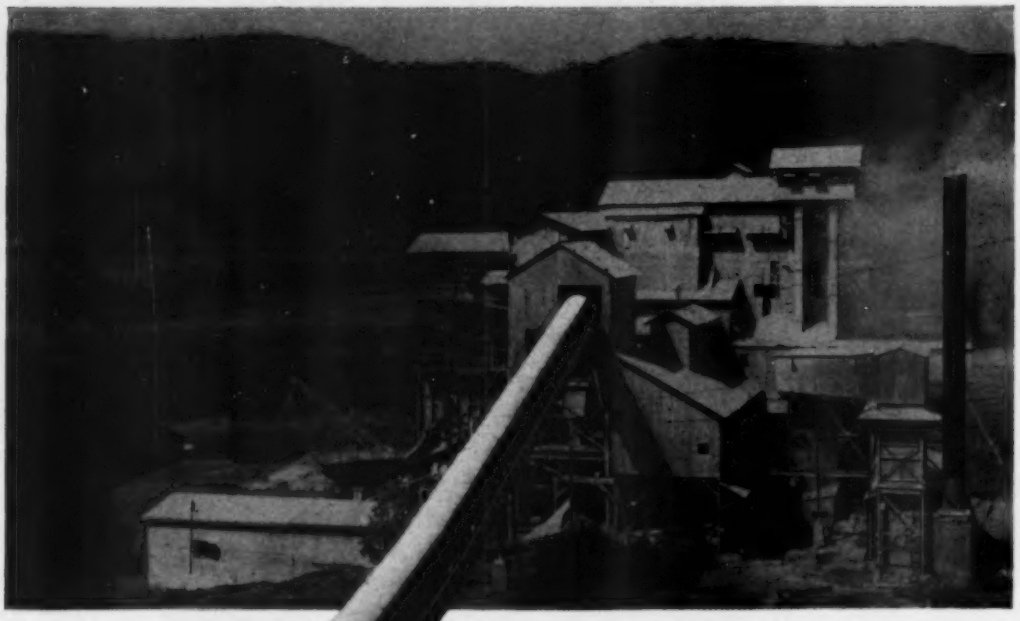


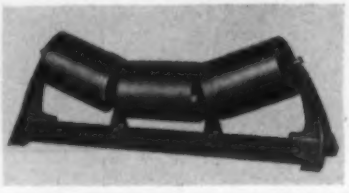
THIS JEFFREY BELT CONVEYOR

Effects Marked Modernization In This Large Limestone Plant

It conveys crushed limestone (1¼"-0") up a 60-foot incline at 125 tons per hour. 500-foot center, this conveyor runs at 227 F.P.M. — 30 H. P. motor. Provides continuous operation with little maintenance.

Jeffrey engineers are constantly effecting marked modernization of material handling methods in the many fields Jeffrey is privileged to serve. It's a story of specialization . . . of painstaking "care" which has constantly attended the development of Jeffrey equipment.

Also on this job are Jeffrey Spiral Conveyors, Bucket Elevators, Feeders and allied machinery. Our engineers are in a position to help you satisfy each new demand in a practical manner. Write today.



One of the Jeffrey 3-roll Belt Idlers, mainstay of the Belt Conveyor system. They are rugged and built to give years of reliable service. Various sizes for the job at hand.

THE JEFFREY MANUFACTURING CO.

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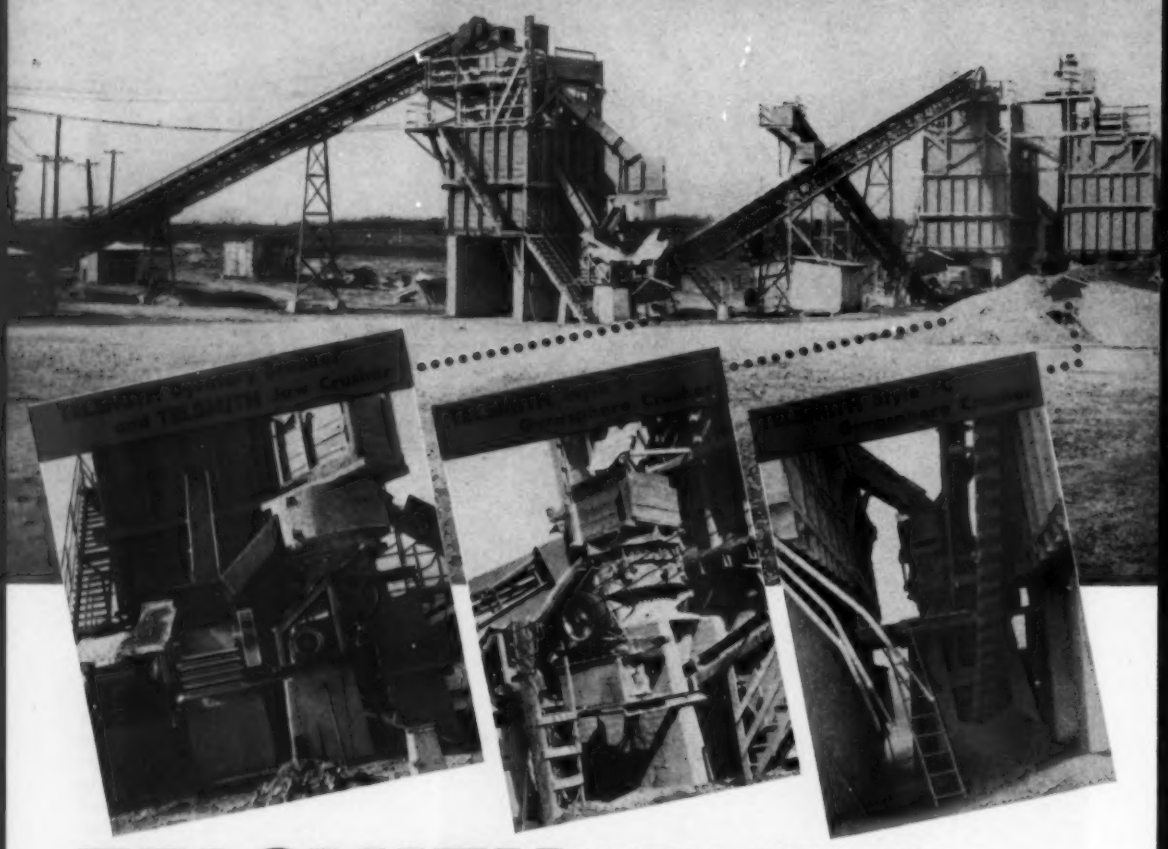
7 SIZES...200 Tons Per Hour

for state highway, bituminous, or ready-mix concrete work



TELSMITH ENGINEERED QUARRY PLANT of Valley Quarries, Inc., New Franklin, Pa.

The large demand for crushed aggregate in the lower Cumberland Valley of Pennsylvania is supplied by this Telsmith-engineered quarry plant. The rock is high grade blue limestone. Plant capacity is 200 tons per hour of minus 2½", making all sizes for state highway work, and ready-mix concrete operations, with provisions for producing large tonnages of fine sizes for bituminous work. With their low-cost, efficient operation, Telsmith-engineered plants pay profits. Get Bulletin 266.

Q-26

TELSMITH Equipment in this Plant

5' x 12' Double-Deck Scalper Screen
13-B Gyratory Breaker
10" x 36" Jaw Crusher
5' x 12' Triple-Deck Pulsator Screen
3' x 10' Double-Deck Pulsator Screen
36 Style S Gyrasphere Crusher
36 Style FC Gyrasphere Crusher
No. 5 Belt Elevator
4' x 10' Triple-Deck Vibro-King Screen

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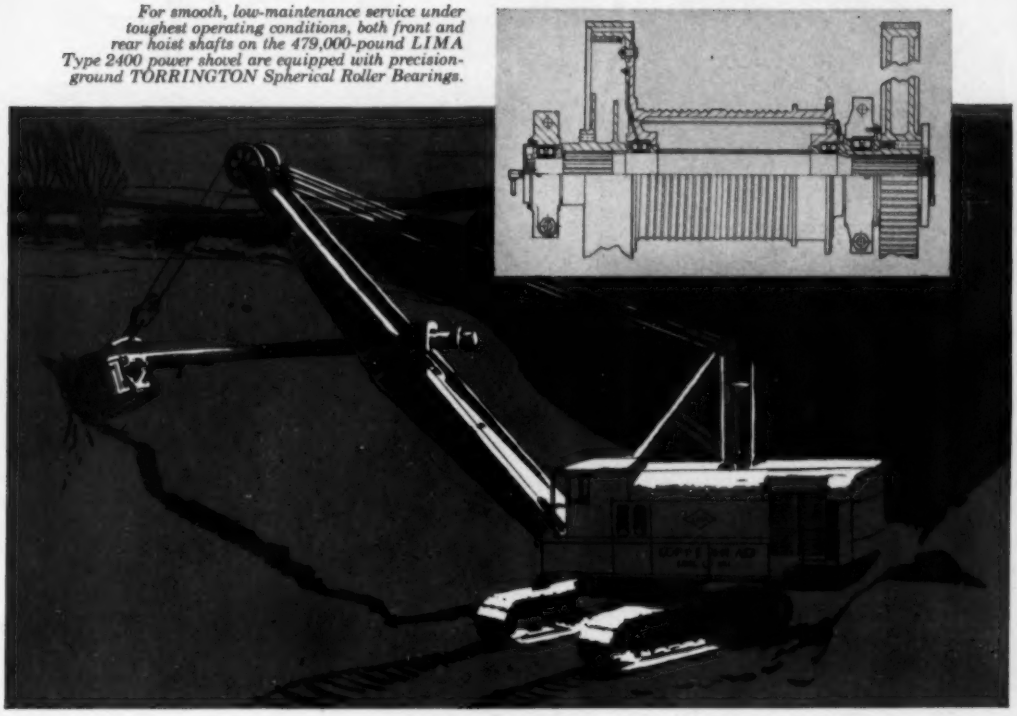
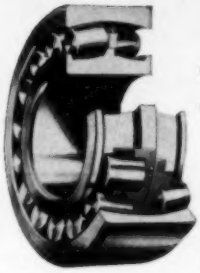
Marcus Eqpt. Co., 432 Main St., Rochester, Mich. • Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif.

Rish Eqpt. Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. • Interstate Equipment Co., Statesville, N. C.

For smooth, low-maintenance service under toughest operating conditions, both front and rear hoist shafts on the 479,000-pound LIMA Type 2400 power shovel are equipped with precision-ground TORRINGTON Spherical Roller Bearings.



Friction defeated!



Power delivered!

The bite of the bucket into solid earth may cause deflection, but TORRINGTON Spherical Roller Bearings, self-aligning and with high capacity, keep right on rolling. Power is constant and your shovel stays on the job.

These rugged friction fighters are made from the finest of bearing steels, carefully heat treated for maximum strength, toughness and resistance to wear. Both rollers and races are accurately manufactured for geometrical conformity and highest load-bearing capacity at all times. The solid ring, cast-bronze cages are *land-riding*.

TORRINGTON Spherical Roller Bearings cut operating costs in the toughest of earth-moving and rock-processing applications. Prove it to yourself—specify TORRINGTON.

THE TORRINGTON COMPANY
South Bend 21, Ind. Torrington, Conn.

TORRINGTON SPHERICAL ROLLER BEARINGS

Spherical Roller • Tapered Roller • Straight Roller • Needle • Ball • Needle Rollers

"Eucs"

Deliver More Payloads at Less Cost

EUCLIDS have what it takes to deliver more loads per hour at the lowest cost per ton or yard moved . . . large capacity, plenty of power and speed, and long service life on the toughest jobs.

"Eucs" are unmatched for job availability — they've established records for high production on a wide range of construction, open pit mining, quarry operations and industrial jobs. This dependable performance is backed by Euclid distributors and factory branches with facilities to provide genuine parts and prompt service to owners everywhere.

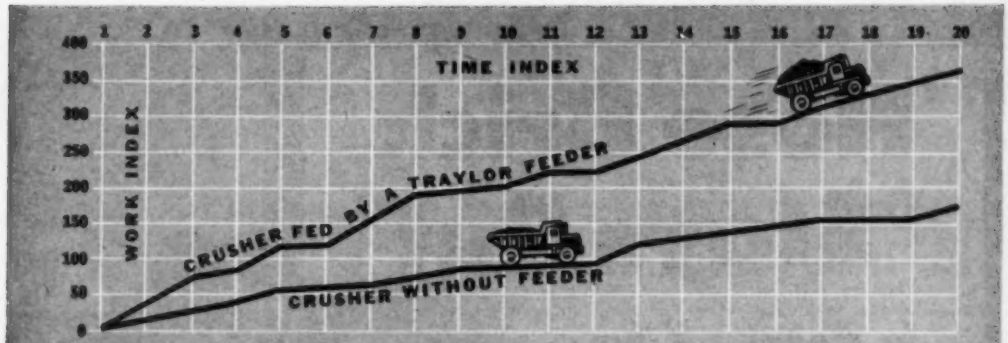
Less down time and maintenance costs assure more profitable hauling. Have your Euclid Distributor show you how "Eucs" can deliver more payloads on your off-the-highway work.

Bottom-Dump Euclids—13 to 25 cu. yds. . . . 190 to 300 h.p. . . . top speeds loaded to 34.4 m.p.h.

Rear-Dump "Eucs"—10 to 34 tons . . . 125 to 400 h.p. . . . spring mounted or semi-rigid drive axles . . . top speeds loaded to 36.3 m.p.h.

The EUCLID ROAD MACHINERY Co., CLEVELAND 17, OHIO

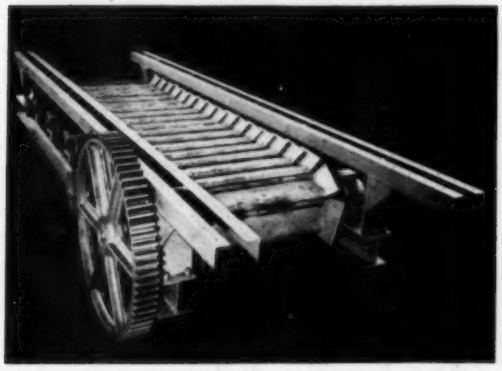
EUCLIDS Move Earth



You take the High Road

This chart, based on actual job records, clearly shows that a crusher evenly fed by a Traylor Apron Feeder more than doubles its production. That's because there are no peaks and valleys in the material supply.

to increased production with **Traylor APRON FEEDERS**



Any crusher is more efficient when working with a controlled flow of material. Unnecessary wear from shock loading is practically eliminated . . . down time is reduced . . . production is increased. Traylor Apron Feeders are built with overlapping, heavy steel aprons and flanges which present a solid surface . . . prevent material leakage. Widths from 30" to 84" in any practical length. Coupon brings illustrated Bulletin with complete information. Send for your copy today.

TRAYLOR ENGINEERING & MFG., CO.
576 MILL ST., ALLENTOWN, PA.
SALES OFFICES: New York • Chicago • San Francisco
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P.Q.

I A I
Traylor
LEADS TO GREATER PROFITS

I want information on Traylor Apron Feeders immediately.

Name: _____

Position: _____

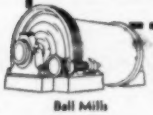
Company: _____

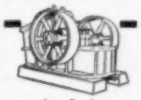
Address: _____ State: _____

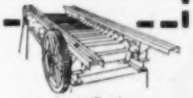
Primary Gyratory Crushers

Rotary Kilns

Secondary Gyratory Crushers


Ball Mills

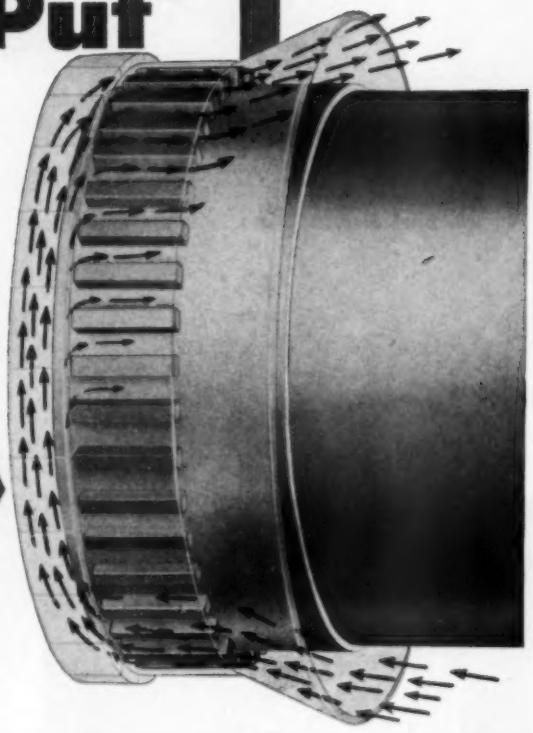

Jaw Crushers


Apron Feeders

Nose Brick "Stays Put"

in Rotary Kilns Equipped With

ALLIS-CHALMERS Air-Cooled KILN END



Savings in Refractory Brick Will Pay for Air-Cooled Discharge End in 2 to 3 Years!

No end warpage on rotary kilns equipped with this air-cooled discharge end. Hot end stays cool, round and rigid. No shut-downs to replace end brick. In addition to refractory savings, you'll get . . .

MAINTENANCE SAVINGS . . . No loss of valuable production time to replace end brick! Savings in brick, labor and down-time will pay for air-cooled end *several times over* during life of kiln.

AND FUEL SAVINGS . . . Because the discharge end will not distort, the air seal between the firing hood and the kiln continues to be effective after years of service. Fuel savings result when the temperature of the air inside the kiln is not decreased by infiltering cold air.

A-3934

Air-Cooled kiln end can be installed on kilns now in service. Get more facts from the A-C representative in your area, or send for Bulletin 07B6368A. Allis-Chalmers, Milwaukee 1, Wis.

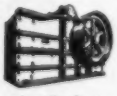
A-C ALLIS-CHALMERS

ALLIS-CHALMERS

Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Hammermills

Vibrating Screens



Jaw Crushers

Gyratory Crushers

Grinding Mills

Kilns, Coolers, Dryers

Eimco's Work Faster! Keep Job Costs Lower

Contractors, on all types of jobs, know that Eimco's will consistently save them money as an all around tool on general maintenance jobs, special repair jobs or new construction.

Take a job of loading sand or gravel. Eimco's will load from 4 to 6 yards per minute, and keep it up. This is a loading speed that invites comparison with heavier, more expensive equipment.

Eimco's are also good at digging unbroken ground for new roads, soil-silt deposits in riverbeds, taking up highway curb or shoulders, loading snow, clearing winter sluff, digging out frost blisters or digging ditches culverts or the toughest kind of rock loading.

Write for complete information on Eimcos stating your type of loading problem.

You Can't beat an Eimco

EIMCO

THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Work Loading Machines

EXECUTIVE OFFICES AND FACTORIES: SALT LAKE CITY 10, UTAH, U. S. A.

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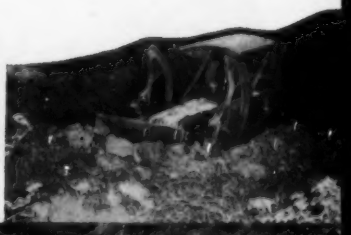
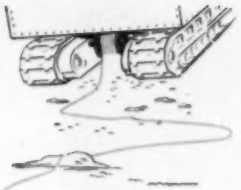




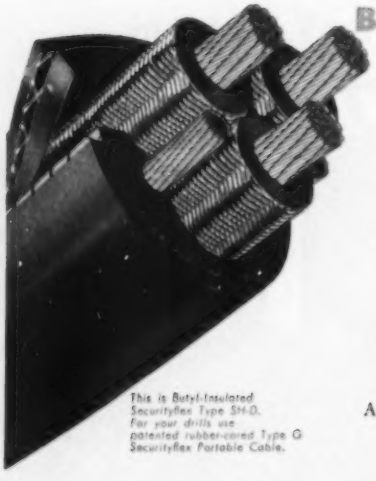
proved in **our** mines

for better performance in **yours**

We—at Anaconda—are miners ourselves. We know shovel cable because we use lots of it. Safety and uninterrupted flow of power are important in any mining operation. In both respects we know Securityflex Type SH-D has a good record.*

for longer "failure-free" service on big shovels, insist on

Butyl-Insulated Securityflex above 2kv



This is Butyl-Insulated Securityflex Type SH-D. For your drills use patented rubber-cored Type G Securityflex Portable Cable.

ANACONDA Securityflex Cable is safer, less liable to "blow-out," easier to work with. Here's why:

BUTYL INSULATION. This accounts for improved resistance to moisture, ozone, heat (up to 80C).

NEOPRENE JACKET. Here is real flexibility and great strength engineered for this specific tough use. Handles well, has high impact resistance and lasts longer in all weather.

RUBBER-CORED GROUND WIRES. This safety-first feature prevents kinking, gives greater shield contact, and cushions the wires.

COPPER-COTTON SHIELD. Special new-type shield makes splicing easier, faster without damage to insulation. Eliminates chafing failures.

Ask your Anaconda Sales Office or Distributor to show you this and other ANACONDA portable mining cables. Learn how continuous improvements have made these famous cables better . . . for safety . . . and for increased production at less cost in your mine. Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.

*Trademark

the right cable for the job ANACONDA® wire and cable

Shown at the left is a view of the triple-coil tungsten wire used in many modern fluorescent lamps. (Photo courtesy General Electric Lamps)

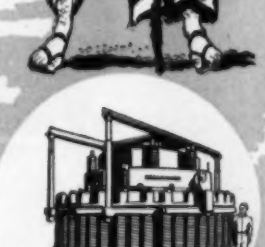
The "ARISTOCRAT OF RARE METALS" might have helped Diogenes . . .

If *TUNGSTEN*, the *"aristocrat of rare metals"*, had been discovered in his time, the Greek Cynic, *Diogenes* might have been able to carry a much brighter lamp to aid in his search for an honest man. For among the many contributions of this metal to modern civilization is the tungsten filament which gives a quality of artificial light otherwise unattainable.

Due to low grade characteristics, and the hard abrasive rock in which tungsten ore is generally found, producers must attain desired particle size for maximum recovery as quickly and economically as possible. It is significant to note the use of SYMONS® Cone Crushers by many of the large tungsten producers . . . who find these crushers particularly suited to tungsten ore reduction because of maximum utilization of crushing surfaces against the highly abrasive material, with minimum wear.

Thus, in tungsten operations . . . *as in all of the great ore and industrial mineral operations the world over* . . . SYMONS Cone Crushers are relied upon to efficiently produce great quantities of finely crushed product at low cost.

NORDBERG MFG. CO., Milwaukee, Wisconsin



SYMONS Cone Crushers . . . the machines that revolutionized crushing practice . . . are built in Standard, Short Head, and Intermediate types, with crushing heads from 22 inches to 7 feet in diameter—in capacities from 6 to 900 tons per hour.

SYMONS . . . A REGISTERED NORDBERG TRADEMARK KNOWN THROUGHOUT THE WORLD.

C153

NORDBERG

MACHINERY FOR PROCESSING ORES and INDUSTRIAL MINERALS

NEW YORK • SAN FRANCISCO • DULUTH • WASHINGTON • TORONTO

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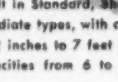
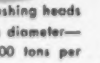
SYMONS PRIMARY CRUSHERS

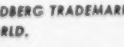


GRINDING MILLS



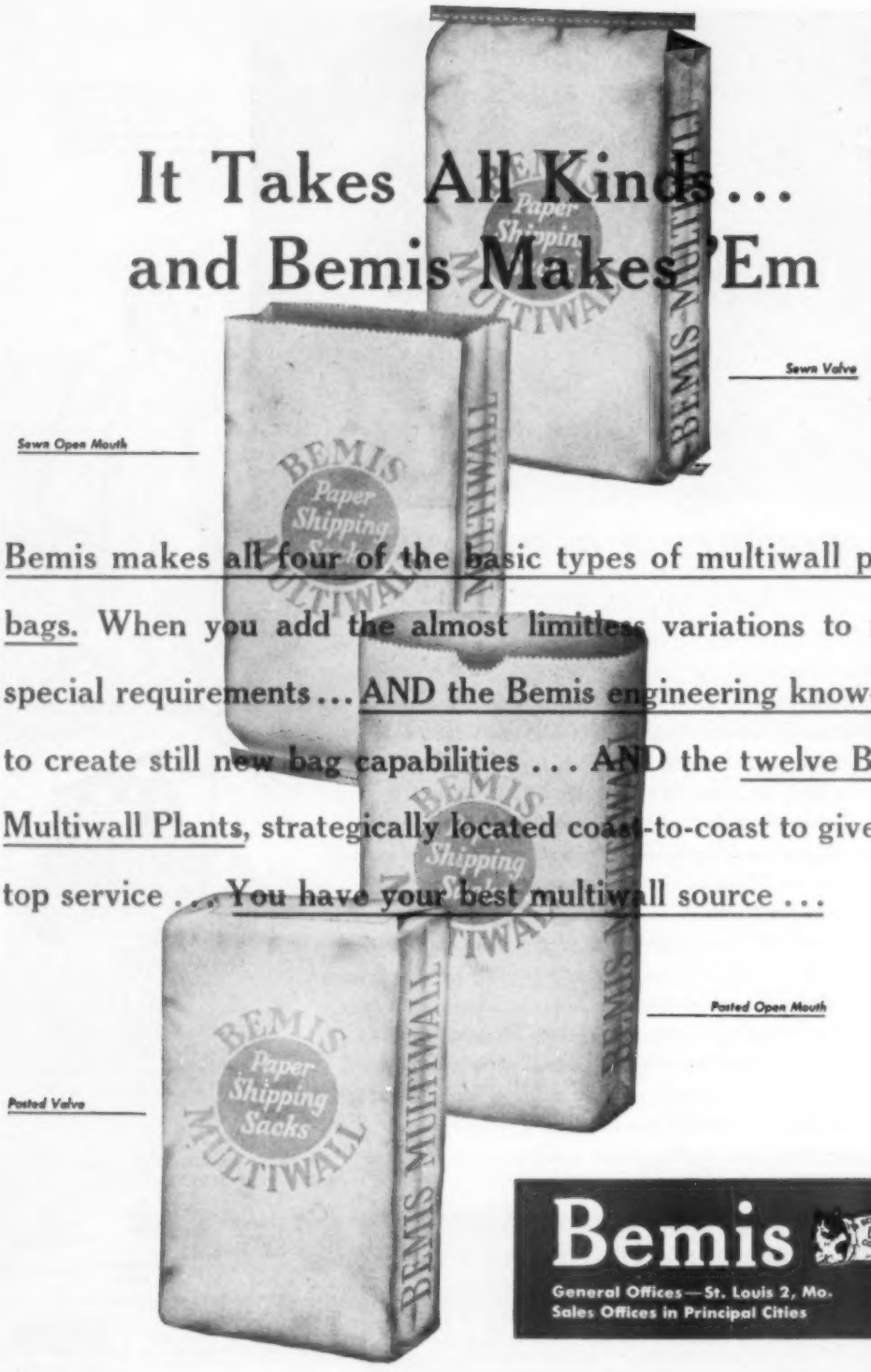
MINE HOISTS

SYMONS VIBRATING BAR GRIZZLIES and SCREENS



DIESEL ENGINES

It Takes All Kinds...
and Bemis Makes 'Em



Sewn Valve

Sewn Open Mouth

Bemis makes all four of the basic types of multiwall paper bags. When you add the almost limitless variations to meet special requirements... AND the Bemis engineering know-how to create still new bag capabilities ... AND the twelve Bemis Multiwall Plants, strategically located coast-to-coast to give you top service ... You have your best multiwall source ...

Pasted Open Mouth

Pasted Valve

Bemis

General Offices—St. Louis 2, Mo.
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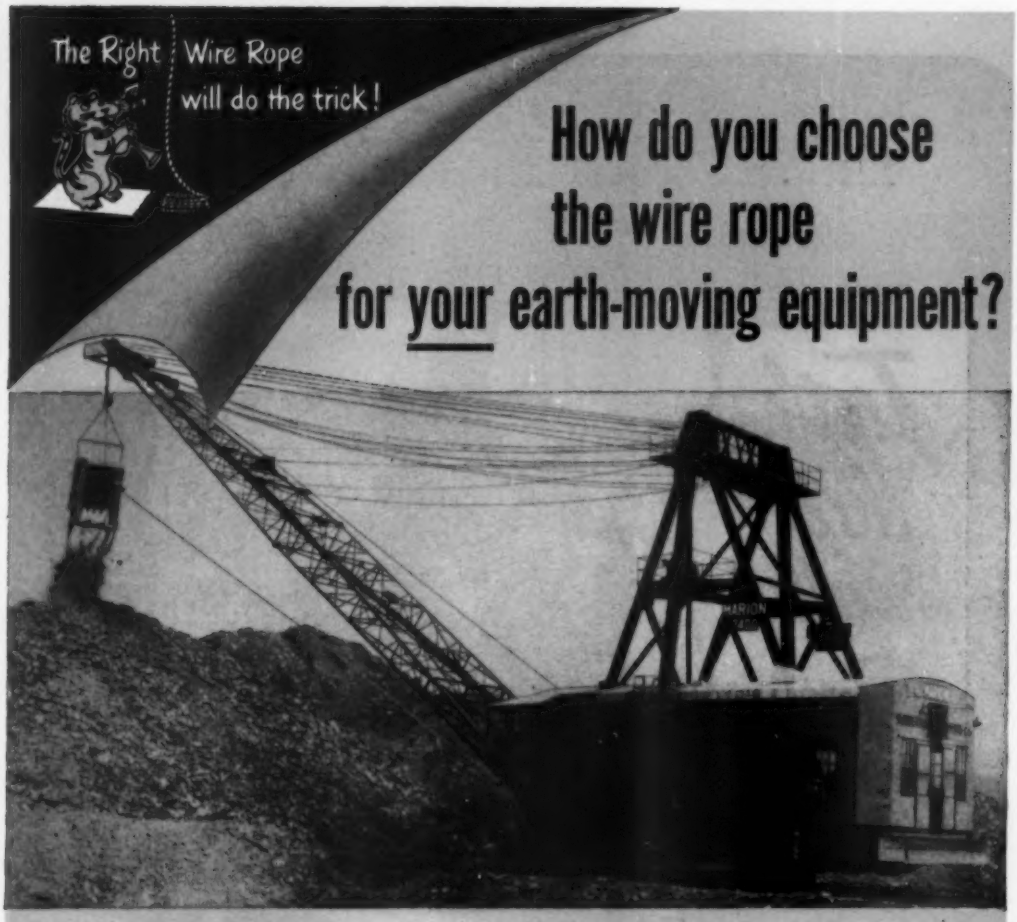
Teeth that really Dig!

POSITIVE LOCKING
FLEX-PIN CONNECTION

H&L



EVERY wire rope on your stripping or excavating machinery needs a particular combination of strength, fatigue resistance, and flexibility. Hoist ropes on big power shovels need high tensile strength to absorb impact stresses and must be extremely tough to withstand constant bending over sheaves. On draglines, drag ropes must possess high strength combined with great abrasion resistance. Boom ropes must have strength plus fatigue resistance.

There's an American Tiger Brand Wire Rope that has been especially designed for every grueling rope job that you will encounter. And it pays to spend a little extra time to analyze your rope requirements carefully and determine exactly which Tiger Brand Rope is the best one to use.

Our experienced Wire Rope Engineers will be glad to help you do this. They know what every Tiger Brand Rope can do and what type of rope every job requires. Their assistance assures you of getting the *right* rope for every job; and that saves you money. Remember, the right rope often lasts up to twice as long as the wrong one. Free engineering service is available through our nearest District Sales Office or by writing to American Steel & Wire, Rockefeller Building, Cleveland 13, Ohio.

AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

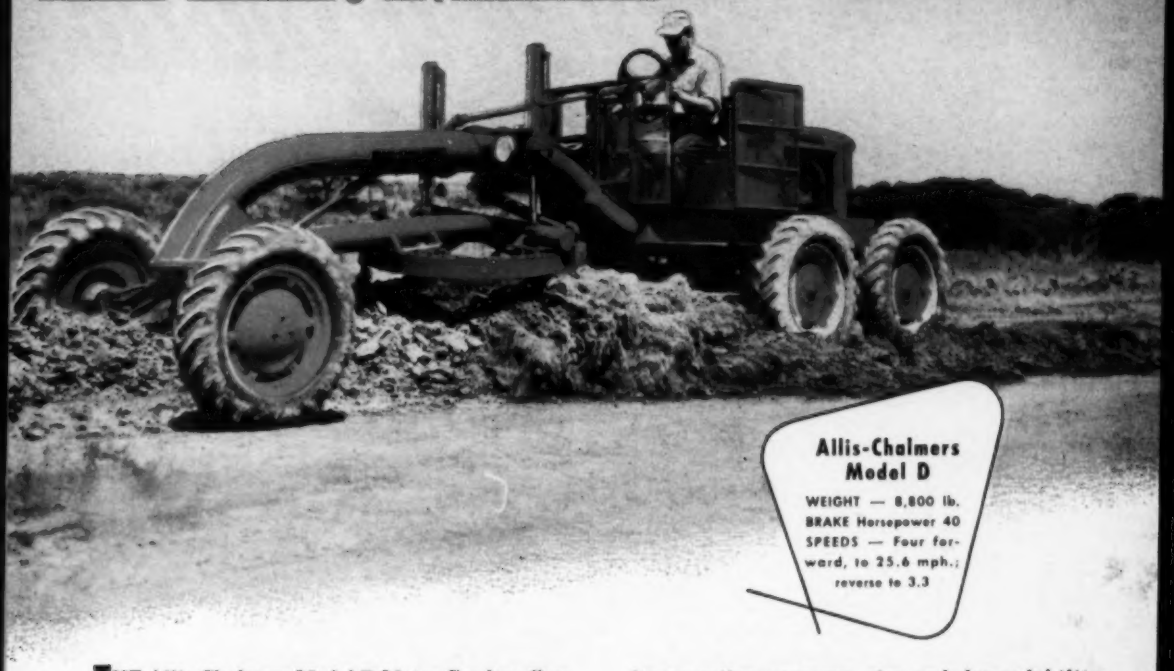
U·S·S AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

USS

UNITED STATES STEEL

Put This
Cost Cutting Specialist on Your Haul Roads



Allis-Chalmers Model D

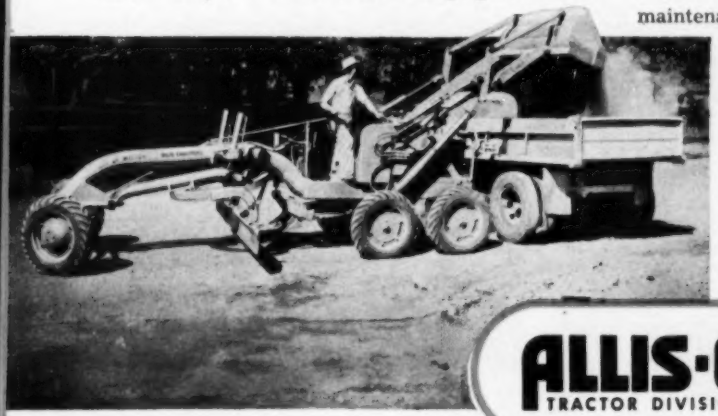
WEIGHT — 8,800 lb.
BRAKE Horsepower 40
SPEEDS — Four forward, to 25.6 mph.; reverse to 3.3

THE Allis-Chalmers Model D Motor Grader offers big-grader design and performance advantages. Like big graders, it has tandem drive wheels to provide real earth-moving traction. It also has a shock resistant tubular frame, high throat and axle clearance, ROLL-AWAY moldboard and power hydraulic controls.

And the Model D has many additional advantages for haul road maintenance. Its low original cost — only a third as much as large graders — its operating economy, size and dependability, make it ideal for this type of work. With the famous Allis-Chalmers 40 hp. gasoline engine, it easily handles all maintenance and light construction jobs. Compactness and short turning radius enable it to work easily in close quarters.

Special attachments — such as the rear-end loader — make it an all-round performer.

See your Allis-Chalmers dealer for all the facts on the low-cost Model D. Start cutting haul road maintenance costs now.



You can count on the Model D to do *more* than maintenance work, for this busy machine has power and traction to handle a good deal of the construction work, too. In addition, its ⅝ cu. yd. bucket loads excess dirt, fills small gullies and ditches . . . handles many other jobs which would ordinarily call for a specialized machine.

ROLL-AWAY is an Allis-Chalmers trademark.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

T. P. H.

...pick a plant

B-G MODEL 840 PLANT

B-G MODEL 845 PLANT

The worldwide acceptance of Barber-Greene Bituminous Mixing Plants is due to their many exclusive advantages that assure profitable, successful operation. For example:

- True portability, easy erection and disassembly
- Accurate, consistent control
- Versatility to produce all classes of mixes economically
- Capacity ranges from 20 to 200 t.p.h.
- Complete equipment—Barber-Greene is the best source for all your bituminous equipment needs, including Feeders, Hoppers, Conveyors, and Finishers.

To *profitably* meet the great need for bituminous surfacing materials, see your B-G Distributor.

B-G Model 840 Plant

With a capacity of up to 40 t.p.h, this plant is most practical for a broad range of users. Output is high enough for average-sized construction and resurfacing jobs — investment is low enough to assure profitable operation at minimum capacities or for intermittent operation.

B-G Model 845 Plant

For producing in the 60 t.p.h. range. Highly portable. Designed to produce mixes requiring two, three or four-bin gradation, this plant is extremely compact, easy to erect.

THE PLANT CAPACITY YOU

B-G Model 804 Mixall

Mixes as little as a 300-pound batch, as much as 10 t.p.h. For all types of bituminous mixes. Portable.

see your B-G distributor

OR WRITE BARBER-GREENE COMPANY, AURORA, ILLINOIS, U.S.A.

T. P. H.

with built-in profits

B-G MODEL 848 PLANT

B-G Model 848 Travel Plant

The B-G Travel Plant can produce over 200 t.p.h. of highest quality bituminous or stabilized mixed-in-place material. It mixes in an elevated pugmill, giving full control and eliminating bitumen losses. It has a short mixing cycle, allows the use of heavier bitumens, minimizes wet weather hazards, allows working later — and earlier — in the season.

WANT IN TONS PER HOUR

B-G Model 848 Intermediate Type Plant

Between road mix and "high type" mix bituminous construction, there is a broad range of "intermediate mix" work that is most profitably handled by this plant. With capacities up to 120 tons per hour, this plant can easily be converted to a "high type" plant by adding the B-G gradation unit. Mixer alone may be used in Travel Plant service.

Model 848 Plant with Gradation Control Unit

The addition of the B-G portable four-bin gradation control unit provides a new ease and flexibility in multiple aggregate control. This plant will produce up to 120 t.p.h. of the highest type mixes. Here is the ultimate combination of capacity with uniform high quality and ability to meet the most rigid specifications.

Barber-Greene

60,000 TONS 24 DAYS 4 PITS

RAY FISCHER'S NEW UNIVERSAL 880 GRAVELMASTER SENIOR "R"

Operating his Universal Senior "R" in four separate pits from Pipestone to Minneapolis, Ray Fischer of Fischer Construction Company produced 60,000 tons of ¾" specification in 24 days which included moving and set-up.

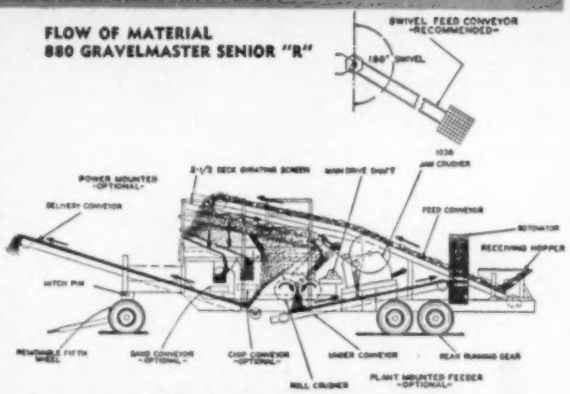
The Universal Senior "R's" BIG 10" x 36" jaw crusher, BIG 30"x22" roll crusher, and EXTRA LARGE 4'x12' 2½ deck screen made it possible for Ray Fischer to pour out this tonnage under a wide range of pit conditions. Percentage of crush varied from 15 to 43%. Frequently 6 tons a minute were pouring off the delivery conveyor. **That's production!**

The modern, streamlined design keeps weight within state highway limits . . . enables fast, easy moving from pit to pit . . . affords fast set-up. **That's portability!**

It's easy to see why Ray Fischer placed a second Universal Senior "R" into operation the same season.

Before you buy or specify, get the low-down on the many new Senior "R" features that combine top capacity with ready portability to help you win more bids . . . earn greater profits on every job. Ask your Universal distributor for details. Write today.

FLOW OF MATERIAL
880 GRAVELMASTER SENIOR "R"

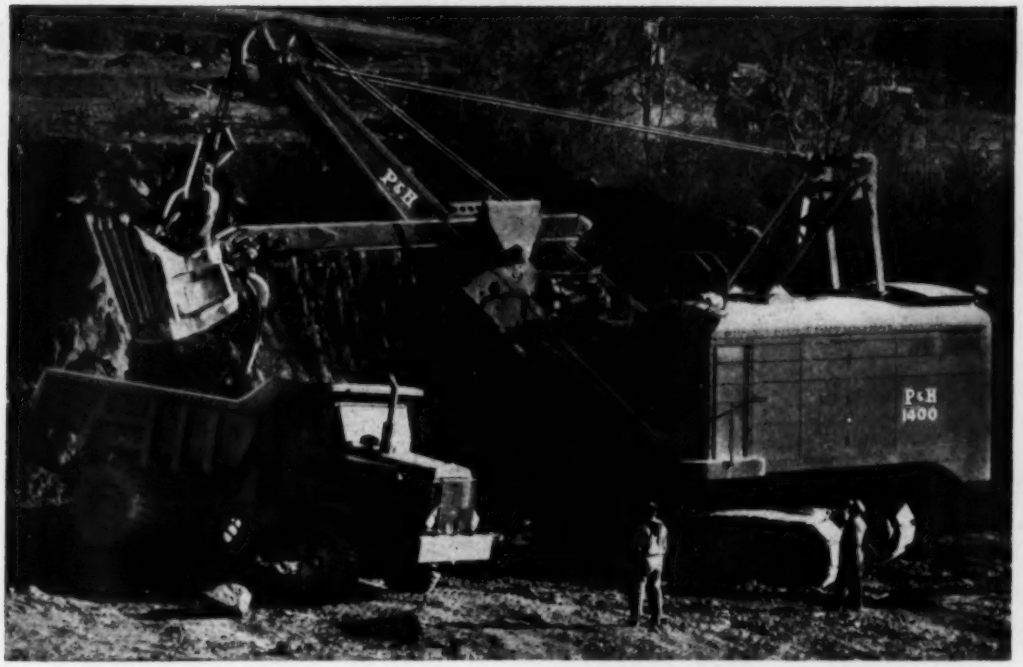


UNIVERSAL GAVE CEDAR RAPIDS ITS ORIGINAL FAME FOR QUALITY CRUSHERS IN CEDAR RAPIDS SINCE 1906

UNIVERSAL ENGINEERING CORPORATION Division of PETTIBONE MULLIKEN CORPORATION

619 C Avenue N.W., Cedar Rapids, Iowa
Phone 7105

4700 West Division St., Chicago 51, Illinois
Phone Spaulding 2-9300



MODERN P & H ELECTRIC SHOVEL with electro-magnetic type clutch and P & H stepless power regulation—Harnischfeger Corporation, 4400 W. National Avenue, Milwaukee, Wisconsin.

Mr. Strip Miner:

"WHAT'S A GOOD SHOVEL WORTH?"

In today's market, the cost of a large, modern electric stripping shovel runs somewhere in the neighborhood of a quarter of a million dollars! A tidy sum indeed!

But aside from the initial dollars invested, your strip shovel is the key to your operation . . . the hub around which your operation revolves. When it's out of action, it leaves a tremendous hole in your production parade . . . a gaping hole that's immediately reflected in dollar profits.

We're sure you'll agree that your strip shovel is certainly worth every effort and expense necessary to see that its many vital moving parts are efficiently and expertly lubricated.

THAT'S WHERE THE COMPLETE LINE OF CITIES SERVICE LUBRICANTS CAN SERVE YOU. Cities Service offers one-source lubricant buying for you. There is a Cities Service Lubricant for every lubricating point on your shovels . . . electric motors, bearings, gears, cables. Actually, the complete Cities Service Line can cover all your needs in all mining operations . . . from the lubrication of locomotives, mine cars, tractors and motor trucks, right down to tempering and quenching oils that may be required in your equipment repair shop.

Why not try the Cities Service one-source plan? You'll find it saves time in buying, cuts equipment down-time, and adds dollars to your profit column. Call your nearest Cities Service office or write Cities Service Oil Company, Dept. D15, Sixty Wall Tower, New York City 5, New York.

CITIES SERVICE
QUALITY PETROLEUM PRODUCTS

GRAVITY DUMP eliminates

SIMPLE BODY RELEASE LEVER WORKS *INSTANTLY*

1 Body release lever is located in cab to left of steering wheel. Lever engages toggle linkage to latch hook on chassis . . .

2 Trip rod instantly releases latch hook from body latch seat on the tilting Dumptor body. Gravity dumps load instantly as . . .

3 Body rolls on heavy-duty rockers. Snub chains attached to big coil spring shock absorbers check body at 70-degree tilt.

KOEHRING HEAVY DUTY

body hoists

Koehring Dumptors have no slow-working body hoists. You trip the release lever and gravity dumps the 6-yard load in one second.

Cuts maintenance costs . . . there are no complicated mechanical hoists to slow up haul cycles . . . no expensive hoist replacement parts, maintenance or down time to eat into your profits. And gravity dump is always instantaneous, trouble-free in all temperature extremes . . . never wears out.

No spring maintenance is another money-saving advantage you get with Koehring Dumptors. There is just one big, double-coil chassis spring on steering axle . . . none on driving axle. Big shock-absorbing drive tires eliminate need for more springs . . . save spring maintenance time and replacement costs.

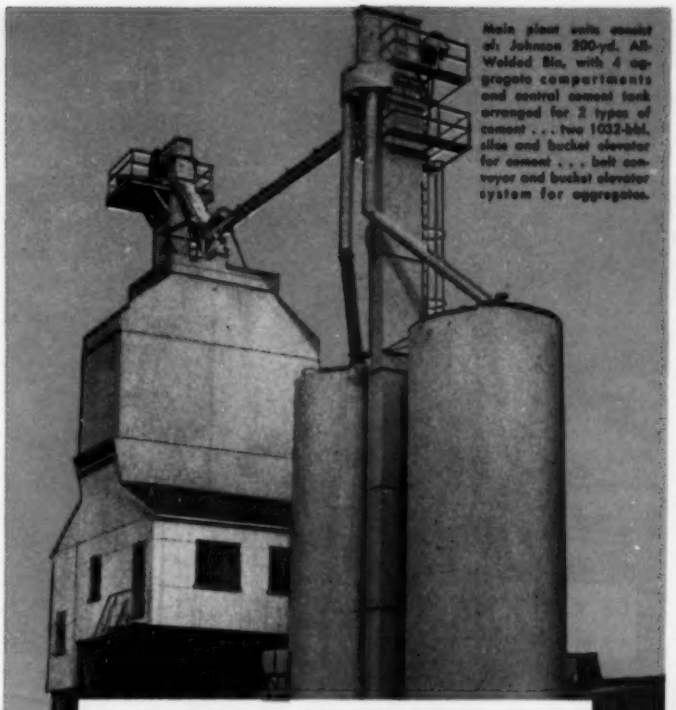
Check your body hoist and spring maintenance costs for a year . . . see how much you will save when you haul with heavy-duty Dumptors. In addition, Koehring constant-mesh transmission gives Dumptor the same 3-speed travel forward and reverse for "no-turn" shuttle hauling . . . increases production and your profits.

Get complete facts and figures from your Koehring distributor . . . or write to us for informative 28-page Dumptor® catalog.

KOEHRING CO.

Milwaukee 16, Wis. Subsidiaries: PARSONS • KWIK-MIX • JOHNSON

CK234



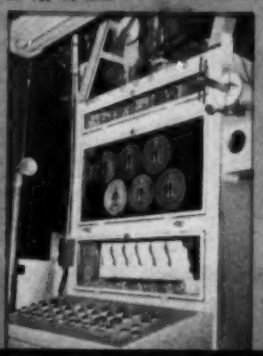
Main plant units consist of: Johnson 200-yd. All-Welded Bin, with 4 aggregate compartments and central cement tank arranged for 2 types of cement . . . two 1032-bbl. silos and bucket elevator for cement . . . belt conveyor and bucket elevator system for aggregates.

24 MIX SELECTIONS with "repeater" for automatic re-batching

Fully automatic and completely flexible, this Johnson Transit-Mix Plant produces 24 different size and type batches of aggregates and cement for a commercial ready-mix company at Covington, Ky.

Dial on a 24-mix-selector panel (below) provides for 2500-lb., or 3000-lb.-per-sq.-in. concrete in ½, ¾ and 1-yard batches. On each size batch there are 4 individual selections for 3, 4, 5 or 6-in. slumps. This makes it easy to change from one type of batch to another as needed. A "repeater" provides for continued automatic batching of any one selection for a pre-determined number of times. Operator sets the mix selector, sets the "repeater", pushes the "start" button . . . and the plant weighs out batches fast, accurately.

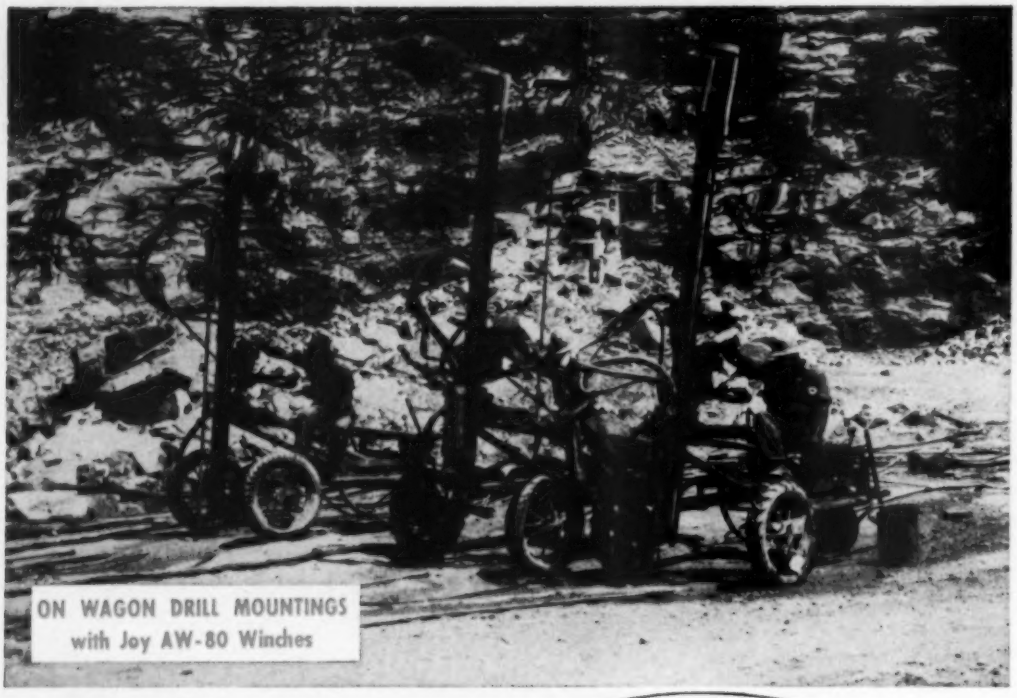
Plant is equipped with a 2500-lb. sand batcher . . . three 2500-lb. batchers for fine, medium and coarse aggregates . . . a 2000-lb. water weigh batcher . . . and a 2000-lb. cement batcher with dual fill valves for selecting 2 types of cement. All are fully automatic, and controlled by the Central Dial Scale Unit with pen recording of the weight of each single-material batch. Recorder shows "full" and "empty" weight of hopper, makes sure a complete batch is weighed out on each material. For all the facts see Johnson distributor . . . or write.



XS

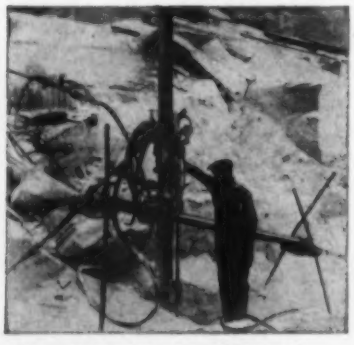
JOHNSON C. S. JOHNSON CO. CHAMPAIGN, ILLINOIS

Koehring Subsidiary



ON WAGON DRILL MOUNTINGS
with Joy AW-80 Winches

Put JOY SILVER STREAK DRIFTERS TO WORK ON YOUR JOB—



ON QUARRY-BAR MOUNTING

Watch daily footage *INCREASE* and costs per foot go *DOWN!*

JOY Silver Streak Drifters feature the exclusive *Dual Valve* with positive cushion control. It gives a harder, more powerful punch—literally makes air do more work. What's more, JOY Drifters *last longer*—give you more feet of hole with less maintenance. Exclusive *cadmium plating*, inside and out, inhibits rust, prevents scoring during run-in, and at the same time, adds power by permitting closer piston tolerances. ● Ask for a trial demonstration on JOY Drifters—the T-300, T-350 or T-400—*prove their all-around superiority right on the job!*

Write for Bulletin, or

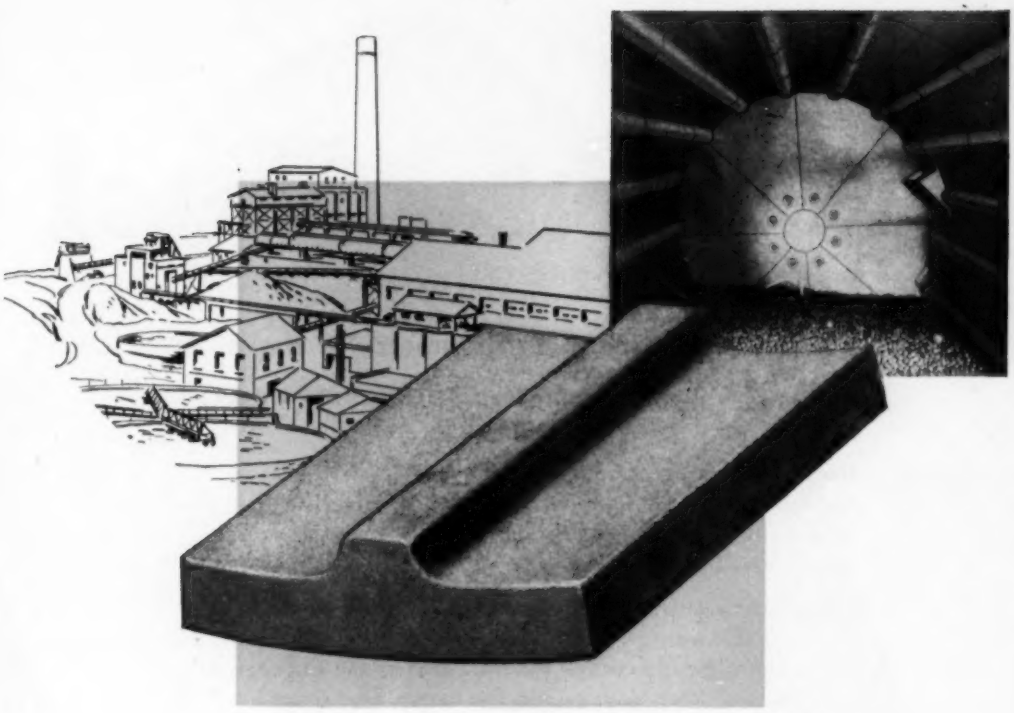
Consult a Joy Engineer

W&D R 2810

JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING · PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO



this LINER boosted production 35%

AMSCO Ball Mill Liners

Reduced Down-Time, Increased Production...

A large West Coast cement producer found that Ball Mill Liners were causing expensive trouble. Liners were thick—*over 3 inches*. This meant reduction in mill capacity. Thick liners also meant tremendous weight. Both thickness and weight reduced production and efficiency. *Liners wore rapidly*, too, causing frequent, expensive replacement jobs, with costly labor and material. And added to the bill was lost production due to mill down-time.

Well-known for their skill in handling impact and abrasion-resistant alloys, AMSCO engineers and foundrymen were consulted.

AMSCO solved the Ball Mill Liner problem.

AMSCO designed a new, light, thin—*1 inch thick*—liner, which because of lightness and thinness increased mill capacity, heightened efficiency. The new liners lasted beyond all expectations and in addition the segments were easier to install. These factors, plus reduced replacement down-time, have been responsible for a *35% increase in production.*

AMSCO is the largest producer of Manganese Steel, "the toughest steel known," which has proven itself under countless abrasion and impact situations. And where the service conditions require it, AMSCO also produces Chromium-Molybdenum and Chrome-Manganese alloys.

If you have a tough wear problem and suspect that there may be a better alloy for your purpose, you are invited to write to AMSCO for further information.

AMERICAN Brake Shoe COMPANY

AMERICAN MANGANESE STEEL DIVISION

396 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que. Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

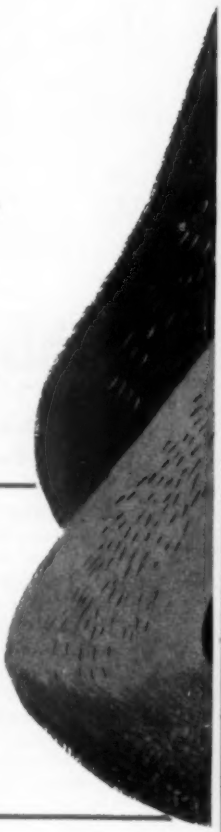
Avoid Breakdowns!

Keep your motorized equipment "in the pink" with Delvac Oils—they keep engines clean!

One shift per day or round-the-clock operation—whatever the demands on your Diesel and heavy-duty gasoline engines, you can keep them on the job *more continuously* by protecting them with famous Delvac Oils!

A new *super-detergent* formula now enables Delvac Oils to keep engines *amazingly clean*. These top-quality oils resist oxidation and foaming, guard bearings, pistons, cylinders and rings against corrosion and wear. Your engines last longer, need fewer repairs and overhauls, produce power more efficiently. You stay on schedule more easily—save on fuel, oil, maintenance.

Ask your Socony-Vacuum Representative for Delvac Oils—recommended or approved by leading engine and equipment builders.



Here's Practical Help for Contractors...

Socony-Vacuum gives you...

- Help on maintenance problems.
- Individual, tested lubrication schedules.
- Advice on correct handling, storage and application of lubricants.
- One source of supply—available everywhere.
- Simplified inventory—with...

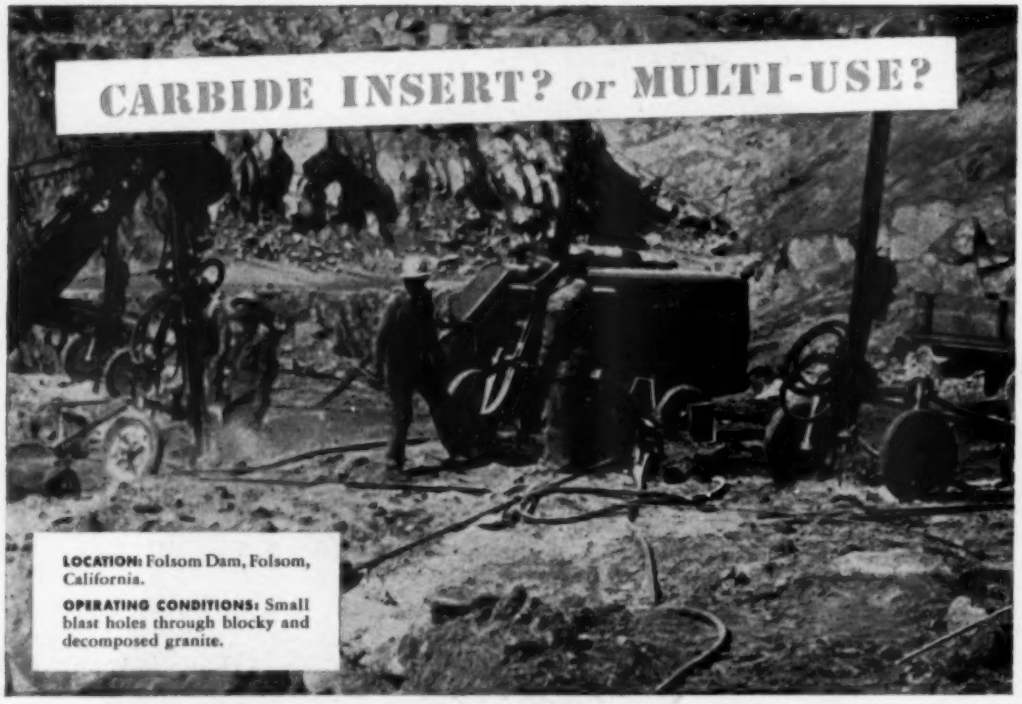
1. **DELVAC OILS**—for all gasoline and automotive-Diesel engines.
2. **MOBILUBE GX**—multi-purpose gear lubricant for all enclosed gears—manually operated transmissions, rear axles and final drives.
3. **MOBILGREASE**—in types and grades for proper lubrication of all chassis parts and engine accessories.

DELVAC OILS

Delvac 900 Series Oils: Under API Classification, recommended "For Services MS, DG."
Delvac 5-200 Series Oils: Under API Classification, recommended "For Service DS."

Correct Lubrication for Contractors

THE FLYING RED HORSE COMPANIES: SOCONY-VACUUM OIL CO., INC., MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.


CARBIDE INSERT? or MULTI-USE?
LOCATION: Folsom Dam, Folsom, California.
OPERATING CONDITIONS: Small blast holes through blocky and decomposed granite.

With TIMKEN® carbide insert bits, H. Earl Parker Co. drills foot of granite per minute of drilling time, averages 600 ft. of hole per bit!

APPROXIMATELY a foot of penetration per minute while drilling! An average of 600 feet of hole per bit! Bit cost materially reduced. These are the results H. Earl Parker Company says it obtained by using Timken* carbide insert bits to drill small blast holes at the Folsom Dam project in California.

Timken carbide insert bits are always your best answer for highest speed through hard and abrasive ground. They're also most economical for constant-gage holes, small diameter blast holes and very deep holes.

But they are *not* the best answer to *all* of your drilling problems!

More economical for ordinary ground are Timken multi-use bits. With correct and controlled reconditioning, they'll give you the lowest cost per foot of hole when full increments of steel can be drilled.

To make sure you're using the best bit type for your drilling requirements, call on the Timken Rock Bit Engineering Service. Twenty years of rock bit experience have made the Timken Company the leader in the field. It has an extensive field engineering service. And it makes both types of bits—both of which are interchangeable on the same steel.

Whichever you choose—carbide insert or multi-use—Timken rock bits have these important advantages: (1) made from electric furnace Timken fine alloy steel, (2) special shoulder unions which protect threads from drilling impact, (3) quickly and easily changed.

For help in selecting the best bits for *your* job, write The Timken Roller Bearing Company, Rock Bit Div., Canton 6, Ohio. Cable address: "TIMROSCO".

Timken threaded multi-use rock bit

Timken threaded carbide insert rock bit

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

your best bet for the best bit . . . for every job

in WIRE ROPE, too, extra strength demands the RIGHT KIND of muscle

Towering as high as eight feet on his hind legs, the Kodiak or Alaskan Brown Bear ranks as the most powerful animal of North America. Rugged muscle development makes him the feared and deadly fighter that he is.

In wire rope, too, the right kind of muscle is essential to ward off the destructive effects of abrasion, corrosion, bending fatigue, load strain and shock stress.

That's why in Wickwire Rope we make sure—through complete quality control—that you always get the right construction and lay of the rope...the right grade of steel and size of wire for long-lasting resistance to the rigors of your particular service.

See your Wickwire Rope distributor or contact our nearest sales office.

THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
THE CALIFORNIA WIRE CLOTH CORPORATION—Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane
WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New York • Philadelphia

WICKWIRE ROPE
A CF&I PRODUCT

A YELLOW TRIANGLE ON THE REEL IDENTIFIES WICKWIRE ROPE

WICKWIRE ROPE

CF&I

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

Step up YOUR PRODUCTION with

MORE and MORE, the call is for bigger loads and faster schedules in the busy, growing construction industry.

You can count on White six wheelers to keep moving at record pace on the big pouring jobs. Rugged and dependable, Whites are tailored right to the exact work conditions, for more work...longer life.

Your White Representative will tell you how *you* can use White Six Wheelers in your business... to *extra* advantage.

WHITE SIX WHEELERS

Stewart Sand & Material Co. Keeps Whites Rolling

Here is a husky White Six Wheeler ready to roll at one of the Stewart Sand & Gravel concrete plants, Kansas City, Mo. Rough going in this business—but Whites have the power ...the stamina...the dependability that makes them the choice of leaders in the industry ...everywhere.

THE WHITE MOTOR COMPANY
Cleveland 1, Ohio

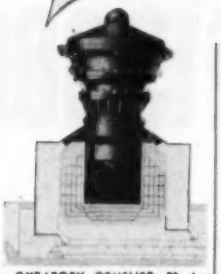
White

For more than 50 years the greatest name in trucks

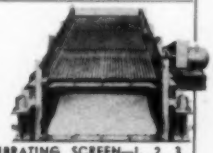
KENNEDY

CRUSHING MACHINERY and EQUIPMENT COMPLETE MINING PLANTS

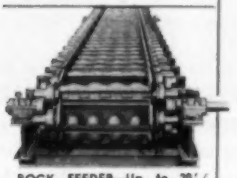
. . . in use the world over!



GYRATORY CRUSHER—70 degree double discharge outlets solve sticky ore problem.



VIBRATING SCREEN—1, 2, 3 decks; 4-way, variable-speed vibration.



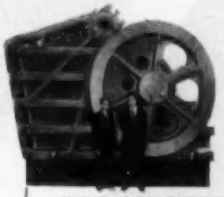
ROCK FEEDER—Up to 20'/minute feeder speed.

ROTARY KILN — Maximum production; gear reduction operation.

KVS machinery and equipment is designed, engineered and built to serve the aggregate and mining industry. Scientific, physical aids that combine utmost utility with rugged stamina . . . the kind of machinery that produces peak capacities with a minimum of maintenance.

An outstanding characteristic of KVS equipment is the fact that all parts are standardized . . . replacement can be made by any qualified machinist . . . spare parts FIT, because they are machined to exacting tolerances . . . ready for instant use. When the rare occasion arises where replacements are necessary, air express deliveries bring you the part needed anywhere in the world and the machine is back in operation within a matter of hours!

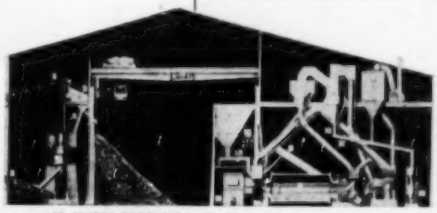
Enthusiastic users tell us that KVS machinery is breaking all records for producing maximum rock tonnage at minimum operating cost. Our engineers are available at any time for consultation on *your* crushing and handling problems. Write, cable or phone.



SWING JAW CRUSHER — Heavy duty; reversible swing jaws.

SLUGGER ROLL—Reduction variable from 2" to 10" while operating.

TUBE MILL—Drives KVS mills of any diameter, length.



AIR SWEPT TUBE MILL—Produces 94% plus through 325 mesh when grinding –2" clinker.

SEND FOR ILLUSTRATED BULLETINS DESCRIBING ALL KVS PRODUCTS.

IT COSTS LESS.. TO OWN THE BEST!

KENNEDY-VAN SAUN
MANUFACTURING & ENGINEERING CORPORATION
TWO PARK AVENUE, NEW YORK
***FACTORY* DANVILLE, PA.**

$15,000

Last June, a Boston Distributor Salesman made a brief call at the offices of a coal mine operator whose production costs were threateningly high. Heavy, abrasive loads and mildew were killing belts in a matter of months.

BOSTON WOVEN HOSE & RUBBER COMPANY

Later, he recommended Boston Conveyor and Elevator Belt Systems which since then have been in operation without a breakdown . . . saving this mine over $15,000 in operation costs in ten months.

Your Boston Distributor Salesman is a trained production expert specializing in rubber equipment for industrial production. He can offer you a complete line of Rotocured Boston Flat Belting and V-Belts . . . free from press overlaps and mechanical distortion . . . with greater load-carrying capacity, more even stretch and longer flex life. He offers a line of Boston Steam Hose that is sturdy, static-resistant, swell-resistant . . . that provides you with greater safety, durability, flexibility and ease of handling. He can have special equipment tailored to your operations and delivered in record time!

The Boston man is coming to see you. Can you afford *not* to see him?

BOSTON WOVEN HOSE & RUBBER COMPANY

MAIN PLANT: CAMBRIDGE, MASS., P.O. BOX 1071, BOSTON, MASS.

DISTRIBUTORS OF A COMPLETE LINE OF MECHANICAL RUBBER PRODUCTS IN ALL PRINCIPAL CITIES

for 15 minutes of your time!

ELEVATOR "DOWN" TOO MUCH?

Look up your answer here *

Having trouble with bucket elevator chains? Here's a good way to avoid getting caught with your "plants down." Use the right chain for the job. Not just a Rex Chain BUT the right Rex Chain.

It's an important point to consider because chain breakage is seldom the fault of the chain. It could be that it's misapplied... not strong enough for the job! Just take a look at the table. You'll see the complete Rex line at a glance. Find the chain you're now using and see how easily you can move up into a stronger chain...one that will give you longer service...eliminate excessive, expensive down time.

We suggest, too, that you consult your Rex Field Sales Engineer. You'll find he's able to give you a lot of valuable help in chain selection...help that will save you plenty.

CONDENSED CHAIN SPECIFICATIONS

If You Are Using	And Want a Stronger Chain, We Recommend	Use Same Sprkts.	New Sprkts. Req'd.
†823	825		√
131	S131	√	
S131	S825		√
†825	S825	√	
S825	S102½		√
†830	S830	√	
S830	S844		√
A102B	S102B	√	
S102B	S102½		√
110	S110	√	
S110	S844		√
A102½	S102½	√	
S102½	S111		√
A111	S111	√	
S111	S844		√
†844	S844	√	
S844	S856		√
A132	SA150	√	

*Can also be shipped in Rex Z-Metal which is approximately 25% stronger, furnished with heat treated pins.

†Can also be furnished with alloy pins and manganese bushings.

Chain No.	Pitch	Working Load	Ultimate Strength
*†823 Ley Bushed	4.000	3,150	19,000
*131 Combination	3.075	3,200	24,000
S131 Chabelco	3.075	4,450	40,000
*†825 Ley Bushed	4.000	5,000	30,000
S825 Chabelco	4.000	6,000	50,000
*†830 Ley Bushed	6.000	5,000	30,000
S830 Chabelco	6.000	6,000	50,000
*A102B Durobar	4.000	4,000	24,000
S102B Chabelco	4.000	6,300	40,000
*110 Combination	6.000	4,000	24,000
S110 Chabelco	6.000	6,300	40,000
*A102½ Durobar	4.040	5,600	36,000
S102½ Chabelco	4.040	7,800	50,000
*A111 Durobar	4.760	6,000	36,000
S111 Chabelco	4.760	8,400	50,000
*†844 Ley Bushed	6.000	6,650	40,000
S844 Chabelco	6.000	9,200	70,000
*A132 Durobar	6.050	8,400	50,000
SA150 Chabelco	6.050	15,000	100,000
S856 Chabelco	6.000	14,000	100,000

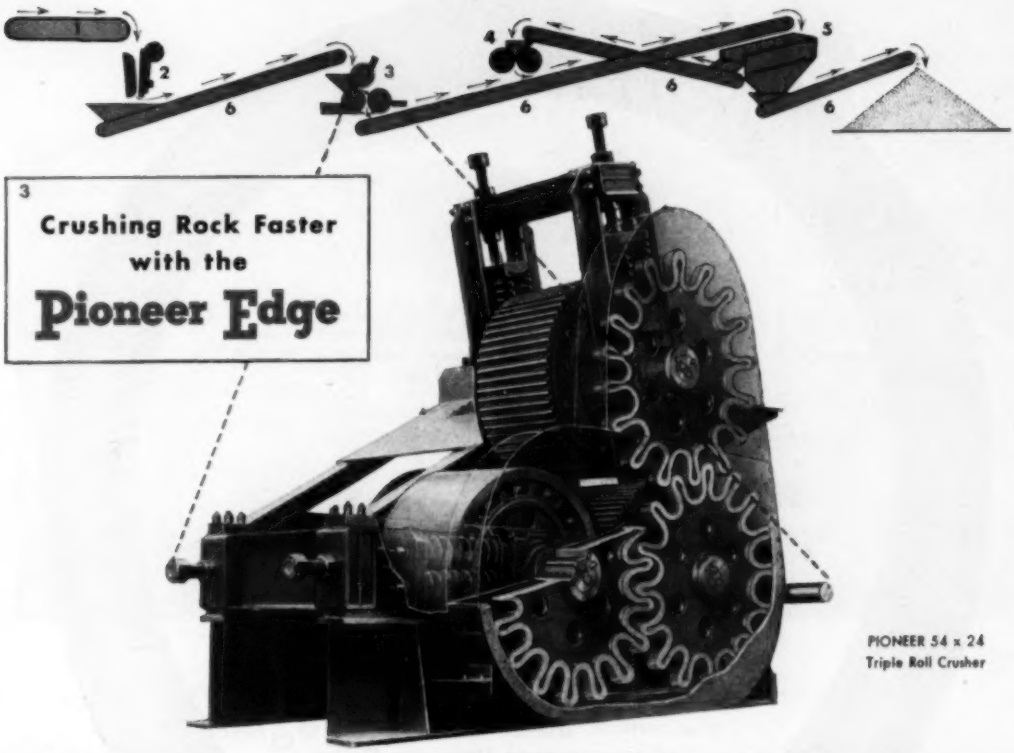
Get the full story on how the complete line of Rex Chains can help you get the most out of your elevating, conveying and power transmission equipment. Write for Bulletin 52-53 today or call your nearest Rex Field Sales Engineer. Chain Belt Company, 4604 W. Greenfield Ave., Milwaukee, Wis.

CHAIN BELT REX COMPANY

Chain Belt COMPANY OF MILWAUKEE

Atlanta • Baltimore • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Cleveland • Dallas Denver • Detroit • El Paso • Houston • Indianapolis • Jacksonville • Kansas City • Los Angeles • Louisville Midland, Tex. • Milwaukee • Minneapolis • New York • Philadelphia • Pittsburgh • Portland, Ore. Springfield, Mass. • St. Louis • Salt Lake City • San Francisco • Seattle • Tulsa • Worcester

Distributors located in principal cities in the United States and throughout the world
EXPORT OFFICES: Milwaukee and 19 Rector Street, New York City.



PIONEER 54 x 24
Triple Roll Crusher

6½" reduction...162 tph of 1" minus

Here's a single crusher that does the work of two!

The 54 x 24 Pioneer Triple Roll Crusher reduces 7½" rock to 1 in a single run . . . because the third roll gives the effect of a second crusher in the circuit.

This lets you open up the primary crusher . . . and that's when the output of your plant shoots up.

Triple Roll Crushers, manufactured only by Pioneer, come in 3 sizes. Capacity of the big 54 x 24 ranges up to 640 tph, depending on material and size of product. The smaller 40 x 22 and 30 x 18 also offer the Pioneer Edge in extra performance . . . pound for pound, hour for hour, dollar for dollar.

FEATURES

1. Star gear drives outwear chains at least 10 to 1 . . . cut costly down-time, maintenance.
2. Less power required per inch of reduction and ton of material . . . 150 H.P. handles biggest model easily.
3. Widest range of adjustment, pound for pound, of any secondary crusher.
4. Lowest initial cost for any given stage of reduction.

SPECIFICATIONS

PIONEER Triple Roll Crushers	Model 54x24	Model 40x22	Model 30x18
Max. stage of reduction...	6½"	5"	3½"
Max. size of feed.....	9"x9"	7"x7"	5"x5"
Capacity (tph)*.....	32-512	24-287	16-131
Recommended H.P.....	150	125	90
Approximate weight (lbs.)..	51,000	27,000	14,900
Roll drive: Chrome molybdenum star gears sealed in oil.			

*May vary ± 25% depending on material and size of product.

Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Subsidiary of Poor & Company • Chicago

Please send information on equipment checked.

- ☐ GRAVEL PLANTS
- ☐ WASHING PLANTS
- ☐ MECHANICAL FEEDERS
- ☐ ROCK PLANTS
- ☐ BITUMINOUS PLANTS
- ☐ VIBRATING SCREENS
- ☐ JAW CRUSHERS
- ☐ APRON FEEDERS
- ☐ BUZZER SCREENS (LIGHT DUTY)
- ☐ ROLL CRUSHERS
- ☐ OGD FEEDERS
- ☐ CONTINUFLO CONVEYORS

Name_____
Company_____
Address_____
City_____ Zone___ State_____

BUY BOTH! HIGHER OUTPUT LOWER UPKEEP

Pioneer *Continuflo* **EQUIPMENT**

Illustrated is Versicon—one of Thermoid's "Basic Five". A true all-purpose hose for handling air, water, oil or welding gases.

When you are in need of hose—
Suggest you look at Thermoid!

See how extra strength is built into each length—with either tough rayon cords or special cotton fabric. Abrasive resistant—light—easily handled—resists kinking—designed for maximum service. Whether it be one of Thermoid's multiple service types or a hose designed for a specific use, your Thermoid Distributor can recommend the type best suited for your particular requirements.

Call your Thermoid Distributor. He has complete information on all types of Thermoid Hose and other Thermoid products. Our experienced Sales Engineers are available for help with unusual problems.

Thermoid
Industrial Rubber Products
Quality Service

It will pay you to specify Thermoid.

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Thermoid

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J.; Nephi, Utah

"Our Dodge trucks are always ready for more work!"

Why new Dodge *"Job-Rated"* trucks help heavy haulers haul down bigger profits!

New stepped-up power!

New Dodge trucks move heavy loads onto and over the highway in jig time. Little wonder, too, with horsepower as high as 171 gross; PLUS higher-than-ever compression ratios. Optional twin carburetion and exhaust systems also give ample power for hauling extra-heavy loads. And because they are *"Job-Rated"*, Dodge trucks are good for years of rugged toil . . . years of thrifty service.

Real rock-ribbed value

On top of regular Dodge extra values, imagine how these new features bolster your truck investment: reinforced cab construction, new "dual-primary"-type brakes that anchor tons of payload on steep inclines, increased engine cooling capacities. It won't cost a dime to drop in and chat with your friendly Dodge dealer. Have him explain how Dodge *"Job-Rated"* trucks fit into your hauling picture.

. . . says **Glenn M. Sayers,** *General Foreman, Whiteside County Highway Dept., Morrison, Illinois*

"Our Dodge trucks do a nice job for us.

"We have four 2½-ton dumps and use them regularly for all sorts of rugged work. They haul road gravel, limestone, black top matter, quarry rock . . . and they plow snow as well!

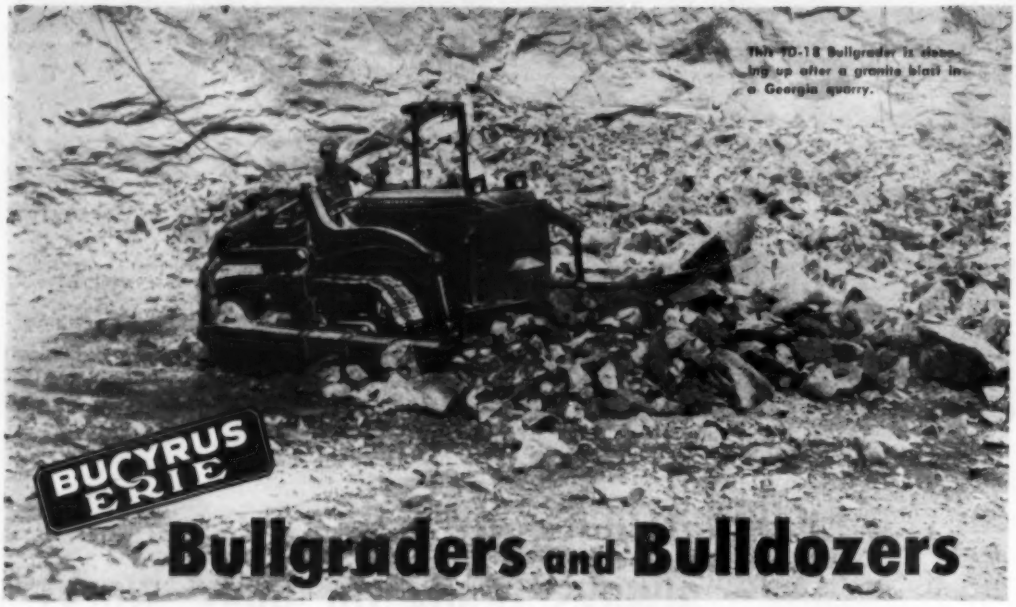
"We are well satisfied with the good, dependable performance of Dodge. Our drivers also tell us that the dependability of Dodge is tops.

"Our Dodge trucks are always ready for more work!"

DODGE

"Job-Rated" TRUCKS

why Bucyrus-Eries wear longer . . .



Bucyrus-Erie blades are proving day after day, in quarries everywhere, that they're built to last longer and deliver dependable performance. Here are just a few of the reasons why:

EXTRA-TOUGH CUTTING EDGE . . . special wear-resistant alloy steel edge is securely bolted to the blade with tough alloy steel plow bolts.

RIGID BRACING . . . moldboard backs are reinforced at top and bottom with flanged beams for sufficient rigidity to resist distortion.

STRESS-RESISTANT MAIN FRAME . . . box section main frame is a welded unit with castings at the corners to withstand extra stresses.

LONG-LIFE CORNER SHOES . . . replaceable cast alloy steel corner shoes are heat treated and hard surfaced to make a long-wearing facing.

BALANCED DESIGN . . . blade attachments are designed specifically for International crawler tractors to maintain balance for full tractive effort. No balance-upset to cause loss of traction and excessive wear. Loads are put where tractor is designed to take them.

31T53

BUCYRUS-ERIE COMPANY SOUTH MILWAUKEE, WISCONSIN

SEE YOUR INTERNATIONAL INDUSTRIAL TRACTOR DISTRIBUTOR

Smooth Screening with SECO

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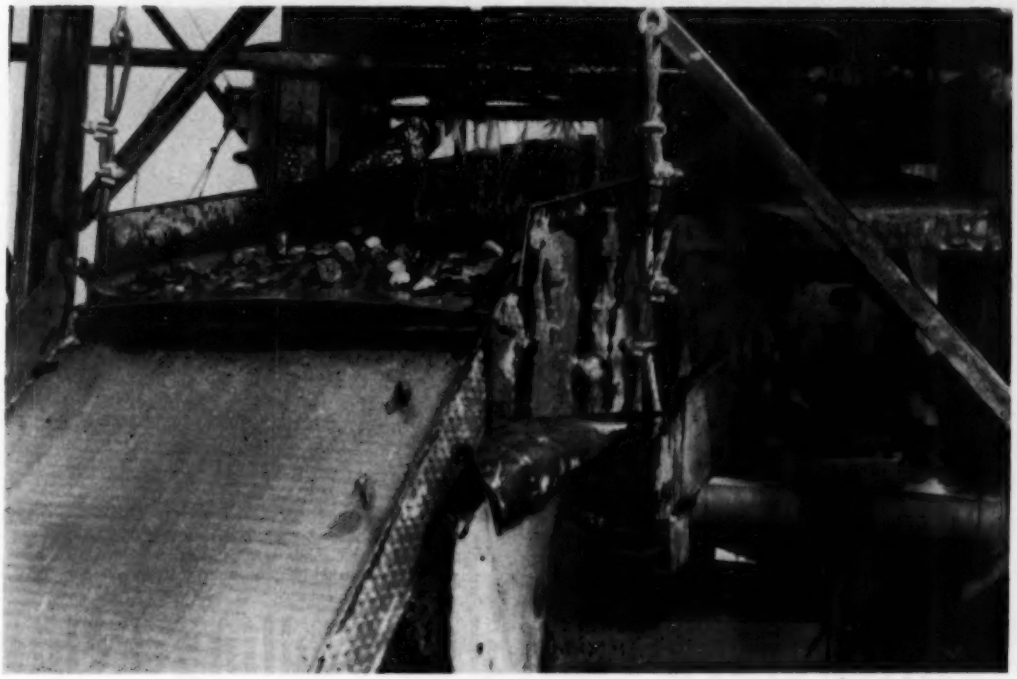

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2 CRUSHED ROCK IS CARRIED to storage by a 30-inch, 1200-foot-long conveyor. This sturdy G-E 60-hp motor starts the fully loaded belt without difficulty.

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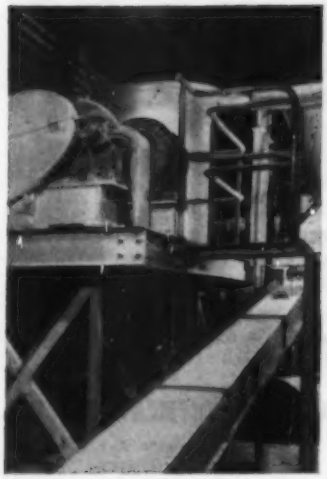
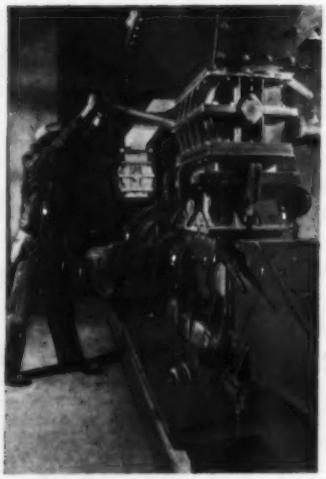


5 PULVERIZED STONE is fed to kilns by screw conveyors powered by a G-E selsyn drive system which co-ordinates screw speed and kiln rotation.



6 FINISHED CEMENT is pumped to packhouse by portable Fuller-Kinyon pumps. G-E 200-hp drives enable each to deliver 600 barrels per hour.

7 CONVEYOR DELIVERS filled bags to dock for loading into cars. Compact G-E gear-motor transmits maximum torque, provides uniform speed.

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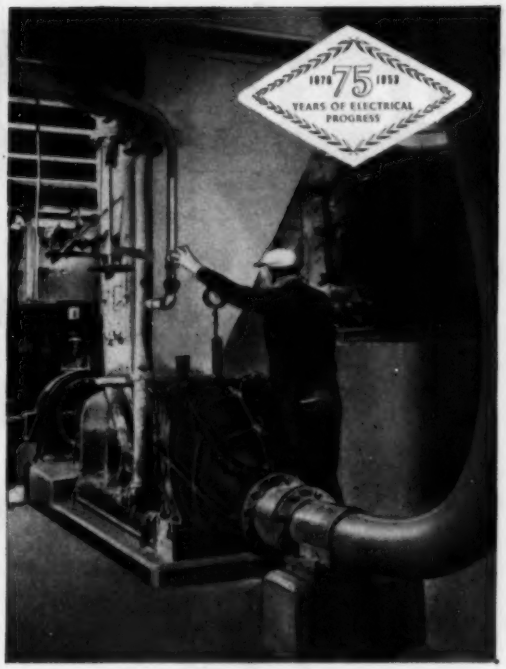

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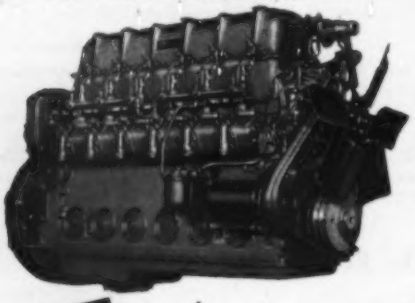

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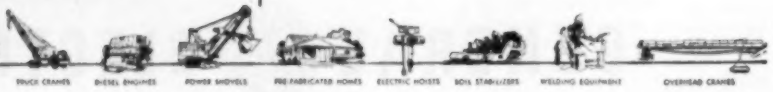

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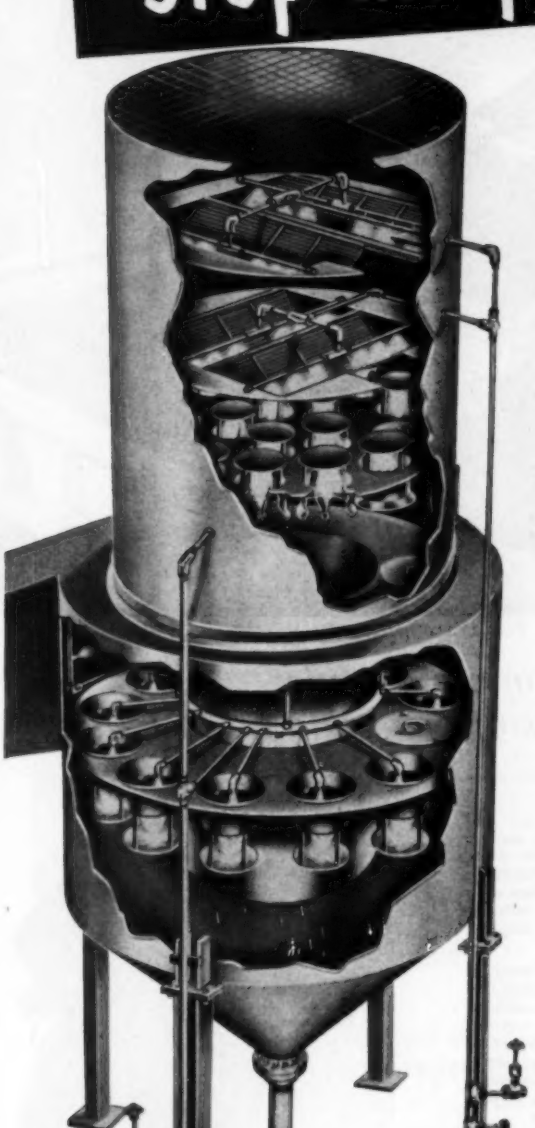

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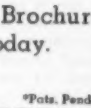

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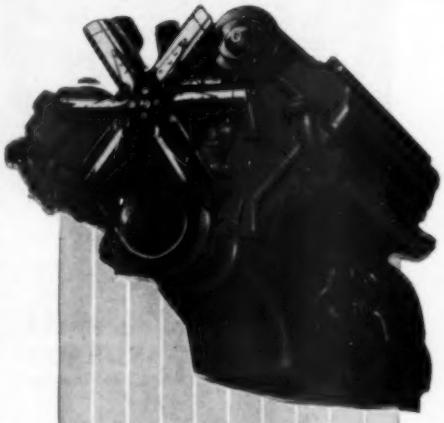

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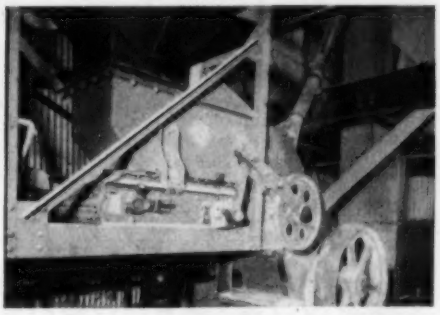

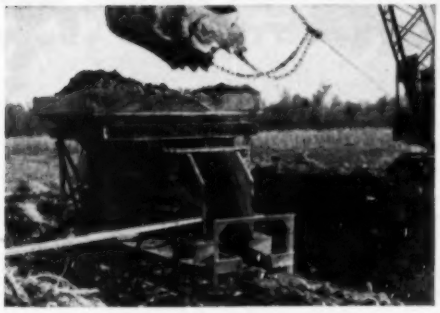

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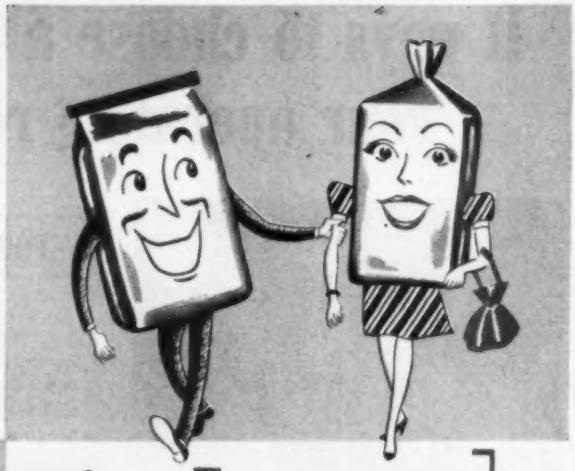

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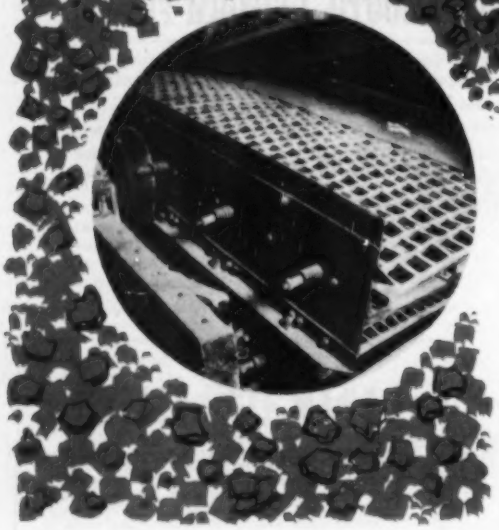

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VOL. 45 APRIL 1953 No. 10

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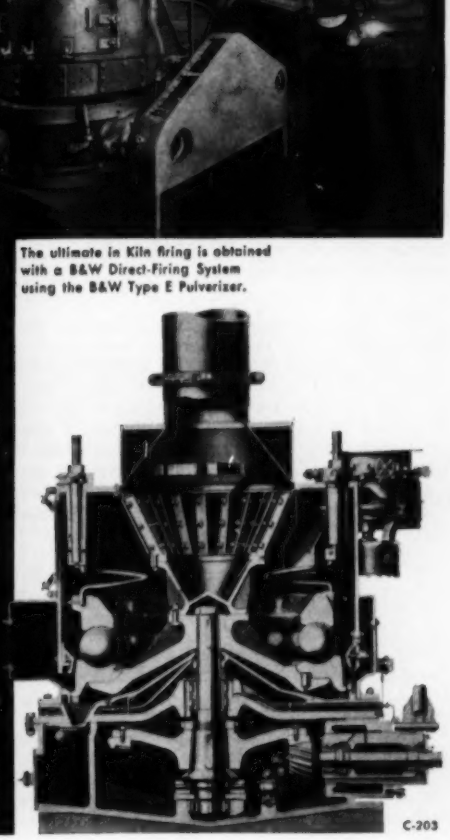

C-203

editorial

Agricultural Conservation Program in Peril

SEVERAL times in recent years we have warned producers of agricultural limestone that the Agricultural Conservation Program, upon which their existence largely depends, was in jeopardy. In each instance the danger was real, with Congress being asked partially, or even fully, to withdraw government financial support of soil conservation practices. Each time a flood of protests from the public, from farmers, and from producer groups and associations prevented Congress from taking a step that might well have become a national disaster. Several times, however, cuts were made in appropriations to levels considerably below the amount necessary merely to keep soil productivity from dropping below its present level.

Again there is a very real threat that appropriations for this program for 1954 will be cut drastically below the $250,000,000 level which the last Congress appropriated for 1953 and which is (in itself) far too low. This peril first became apparent recently when Secretary of Agriculture Benson made it clear that he favored a cut, to $140,000,000, for the 1954 ACP appropriation. According to reliable sources, other powerful forces are in favor of reducing this appropriation. Those who wish to see this program continued on its present scale must therefore mobilize grass roots farmer support as never before. It must be remembered that farmers are in favor of ACP and all it stands for. A survey of 40,000 farmers in four leading agricultural states made by the National Agricultural Limestone Institute, Inc., showed that 83 percent want the program continued without a cut, and 68 percent want it increased.

EVEN with the present amount of support, the annual consumption of agstone remains below the 30,000,000-ton level. Agricultural authorities agree that not less than 50,000,000 tons annually is required merely to keep soil productivity at its present level. That even partial withdrawal of support directly affects the use of agstone was proved in 1948. When appropriations were cut to $150,000,000 by an economy-minded Congress, the demand for agstone dropped sharply. When the figure was raised to $262,500,000 for 1949, the demand jumped back up to approximately present levels.

Only a few years ago such a position against ACP on the part of high government officials could have been excused because little was known about the effect of mineral content of the soil on the grains, vegetables, and animals on which we subsist. Stress was laid almost entirely on increased production. Soil technologists and food and health experts were beginning to be aware of it, but little had been done to educate the public or even the farmers on this subject.

One of the first articles on this subject appeared in the July, 1946, issue of this magazine. Under the heading *Agricultural Limestone for Better Quality of Foods,* Dr. William A. Albrecht, Department of Soils, University of Missouri, presented vivid and convincing proof that the fortifying of soils with calcium is vital to the health of the nation. He showed conclusively that there is a very direct relationship between the health of people and the mineral content of the soil from which their food comes. The increased production obtained by liming soils is, he said, secondary in importance to the other benefits obtained. This paper was followed by similar articles on the same subject by Dr. Albrecht and others, which appeared in PIT AND QUARRY, in national consumer magazines, and in newspapers throughout the country.

EVERY good American is in full accord with the expressed and apparent aim of the present Administration to cut governmental expenditures wherever it is possible to do so without jeopardizing national health and safety. We are all in full accord with the desire to lower taxes as soon as possible. Some of the biggest cuts in governmental expenditures can be made by eliminating subsidies and supports of various kinds, but this should be done only where it is consistent with our national welfare. ACP can be called a support or subsidy, but it is not designed primarily to insure the prosperity of the agricultural limestone or other mineral aggregates industries; this effect is purely incidental.

For the good of the nation, if not for their own welfare, agricultural limestone producers and others interested in the continued addition of liming materials to the soil must again take active steps to keep ACP appropriations at current levels. They must continue to sell farmers on the direct value to them of soil conservation practices; and they, the farmers, and others interested, must convey to the general public by every means possible the important information which has been made available on this subject by government agencies, agricultural colleges, trade associations, and trade publications.

EVERY producer should also contact his congressman at once and make his position clear; and he should induce his customers to do the same. Particular efforts should be made to contact those congressmen who are members of the important Appropriations Committee. As we have said, hearings are now under way before the sub-committee of the House Appropriations Committee on the USDA Appropriations Bill. It is expected that those who wish to appear in support of the ACP will have the opportunity to do so on about April 10. Whatever you and key farmers in your area can do to get your congressman to appear in support of the $250,000,000 appropriation will be very helpful. Time is short, however, and any such steps must be taken at once or they may be too late!

Walter E. Trauffer

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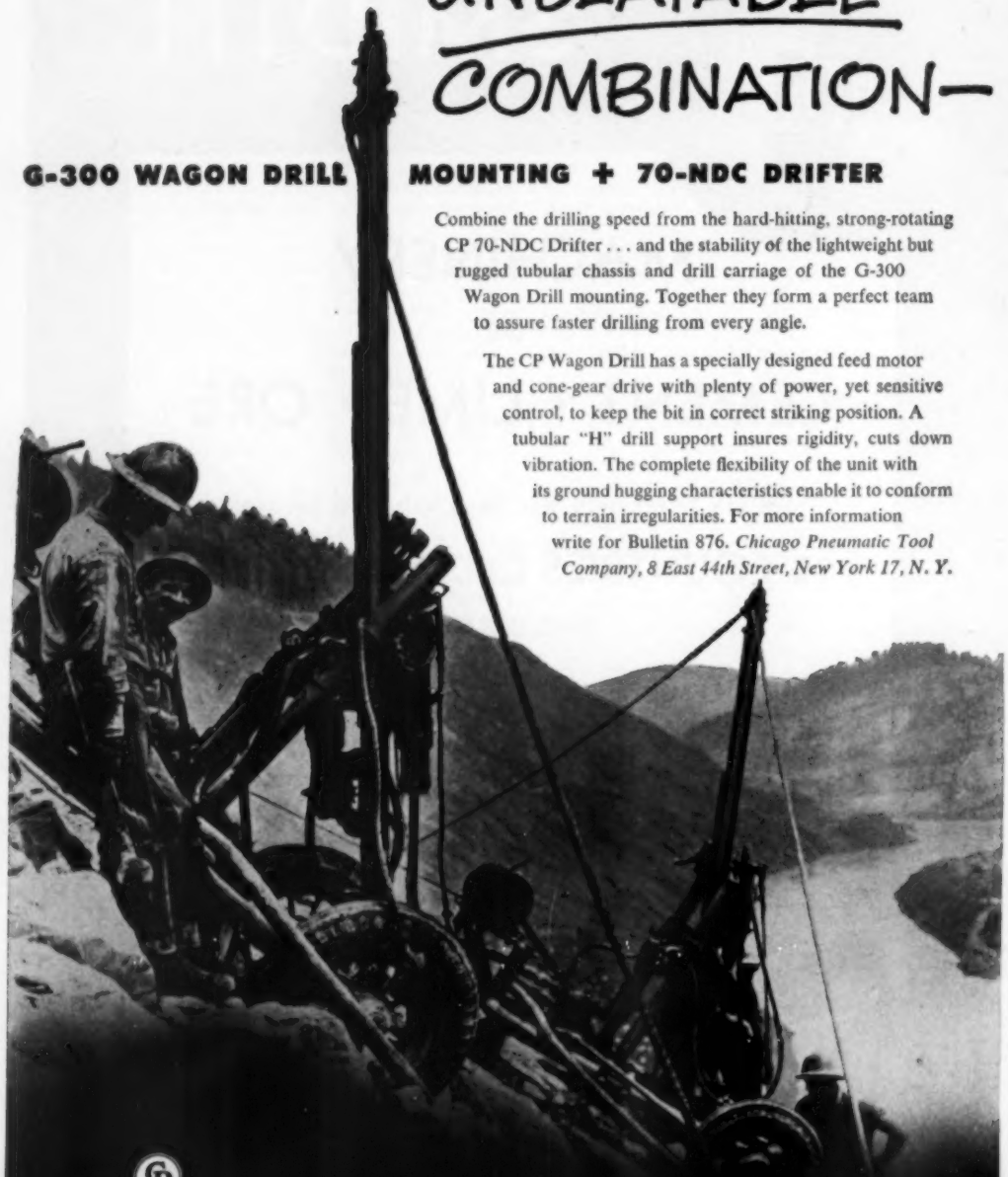

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news of the industry

PIT AND QUARRY

General Trend Is Upward In Annual Reports Of Cement Sales, Profits

Among top portland cement manufacturing companies publishing 1952 returns Ideal Cement Company reported earnings of $7,581,233, or $4.63 a share on 1,636,140 outstanding shares. (This was a preliminary statement.) In 1951 net earnings were $6,399,227, or $4.62 a share on 1,386,213 shares. Sales in 1952 rose to $52,089,661 from $38,644,281 in 1951.

Consolidated Cement Corporation's net sales in the year ended December 31, 1952, was $4,527,156, as compared with $4,972,750 in 1951. Net earnings (after taxes) were $375,170 in 1952, against $452,710 in 1951.

Hercules Cement Corporation officials reported a net income for 1952 of $571,437, or $3.66 per share. This was 4 percent above the $549,233, or $3.54 a share cleared in 1951. Sales declined from $7,708,046 in 1951 to $7,317,548 in 1952.

Penn-Dixie Cement Corporation (and subsidiaries) reported the following for the *quarter* ended December 31, 1952; net sales, $6,340,584, against $6,009,121 in the corresponding quarter of 1951; net profit, $929,414, against $596,320.

Lone Star Cement Corporation's sales for the calendar year 1952 amounted to $80,944,277, and net profit reported was $8,879,614. The corresponding figures for 1951 were $71,378,738 and $8,932,007.

The following summary was given by the Giant Portland Cement Company and subsidiaries: 1952 net profit, $977,650, or 78 cents a share on 1,245,245 shares, as compared with $547,699, or 47 cents per share on 1,154,114 shares in 1951.

During 1952, Glens Falls Portland Cement Company officials reported, the firm's net income was $557,100, or $3.42 per common share, as compared with $468,788, or $2.87 per share in 1951.

Petoskey Portland Cement Company's 1952 net income was $181,897 on net sales of $4,234,282; in 1951 net income was $244,602 and net sales were $4,134,389.

Net profit of the Alpha Portland Cement Company in 1952 stood at $2,779,962, or $4.73 per share, against $2,576,448, or $4.39 per share in 1951.

Medusa Portland Cement Company's 1952 net profit was reported at $1,424,241, or $5.62 a share, on net sales of $17,725,344. In 1951 the figures stood at $1,710,197, or $7.73 a share, on sales of $20,218,598.

For last year the Missouri Portland Cement Company reported a net income of $1,704,088, equal to $5.79 a share on net sales of $12,989,918. In the preceding year net profit was $1,433,904, or $4.88 a share.

Injury Rate Cut 31 Percent At Natl. Gypsum Co. Plants

National Gypsum Company personnel are proud of the fact that the injury rate in the firm's 35 plants last year was cut 31 percent, despite a 10 percent increase in the number of hours worked. The company's disabling injury frequency rate was 7.6 per 1,000,000 manhours, well below the 9.1 figure for all industries.

For the second consecutive year, there were no fatalities through industrial accidents in any of National's plants. Bronze plaques have been presented to plants with the best record in each industry group. In addition, each employee at the top plants received a personal award.

Coming Events

May 13-15, 1953 — Hot Springs. 18th annual meeting, National Industrial Sand Association. The Homestead.

June 8-10, 1953 — Hot Springs. 51st annual convention, National Lime Association. The Homestead.

June 28-July 3, 1953 — Atlantic City. Annual meeting, American Society for Testing Materials. Chalfonte-Haddon Hall.

Walter W. Patnoe, Veteran Of Basic Refractories Staff, Dies of Heart Attack

Walter W. Patnoe, chief engineer for Basic Refractories Incorporated, Cleveland, Ohio, died of a heart attack in his home in Bay Village, Ohio, on March 4, 1953.

Mr. Patnoe joined the Basic Refractories organization as plant engineer and construction superintendent in 1916 at the time they were erecting their first rotary kiln. He was manager of their Maple Grove, Ohio, plant for many years and had been chief engineer since 1924. Prior to joining Basic, Mr. Patnoe had worked as engineer and superintendent for the Stephens-Adamson Manufacturing Company, and for several years as design engineer for the Buckbee Engineering Company, Chicago. He had also worked as a plant engineer for the Dolese and Shepard Company, Chicago, for the Iowa Portland Cement Company, Des Moines, Iowa, and for the Toledo Stone and Glass Sand Company.

Mr. Patnoe had been active to within a few months of his death. Some of his recent accomplishments were the design and supervision of the construction of the rotary kiln plant for processing magnesite at Gabbs, Nev., completed in the latter part of 1950, and the design and supervision of the construction of a new plant to make dead burned dolomite at Maple Grove, Ohio, completed in June, 1952.

Mr. Patnoe was born in Chicago, Ill., on April 21, 1888, attended grade and high schools in Chicago and Toledo, Ohio, and received his college training at St. Johns College, Toledo.

T. R. Ellerbeck, Inventor Of Calciner, Dies at 52

T. R. Ellerbeck, vice-president and general manager of the Utah Lime and Stone Company of Salt Lake City, died on March 14 at the age of 52 years.

Mr. Ellerbeck had been affiliated with Utah Lime and Stone since his graduation from the University of Utah. Since 1929 he had served as vice-president and general manager of the firm.

As co-inventor of the Ellernan calciner, Mr. Ellerbeck was president of the Ellernan Company.

Dodge Sees Continued Home Building Boom— 2-Month Total Up 20%

The residential boom will continue for a while, according to the F. W. Dodge Corporation. Dodge reports in the 37 eastern states for the first two months totaled 20 percent more than for the first two months of booming 1952, although the February figure was down 9 percent from January. It was the biggest two-month gain in any of the Dodge construction classifications.

This is housing that was reported when it was about to start or had just started, and will be in progress of construction over a period of months.

Dodge total construction figures for the two months, as compared with the same two months last year, were $2,097,178,000, up 17 percent from the 1952 figure. Dodge's February figures show the following developments:

All classes: $1,021,310,000, down 5 percent from January, but up 15 percent from February, 1952. Nonresidential, $374,321,000, down 8 percent from January, but up 24 percent from February, 1952. Residential, $418,568,000, down 9 percent from January, but up 6 percent from February, 1952. Heavy engineering (public works and utilities), $228,421,000, up 9 percent from January and up 22 percent from February, 1952.

Standard Materials Acquires Seventh Plant in Indiana

Standard Materials, Inc., Indianapolis, Ind., has taken over the C & M Sand and Gravel Company plant at Milton, Ind. This is the seventh plant in Indiana to be operated by Standard.

The plant at Milton is a screening and washing operation with a capacity of 3,000 tons daily. Sand and gravel is recovered by dragline and conveyed automatically through the washing and screening operations. Plans are being made to install a barge loading station on the river.

Harry M. Stringfellow, who organized the C & M Sand and Gravel Company with W. N. Tandy, is now a sales representative for the firm. Paul Meredith is superintendent of the plant.

Quick Change Operation At N.W. Magnesite's Quarry

The Northwest Magnesite Company recently replaced 17 miles of one-inch traction cable on their tramway system at the Keystone-Red Marble quarry, near Chewelah, Wash.

The change required 50 hours as the new cable was carried into place on the system and the old cable withdrawn. The only interruption to regular traffic on the tramway was the short period needed to adjust each ore bucket to the new cable.

New Atomic Energy Plant Takes Crushed Stone Output

A crushed stone plant with a capacity of 3,600 tons daily has been placed in operation near Lathan, Ohio, to provide crushed stone for roads to serve a new atomic energy plant.

The crusher for the plant was moved from a location in Tennessee where it was no longer needed. It is expected that the crusher and plant will be in operation for about five years at the new location.

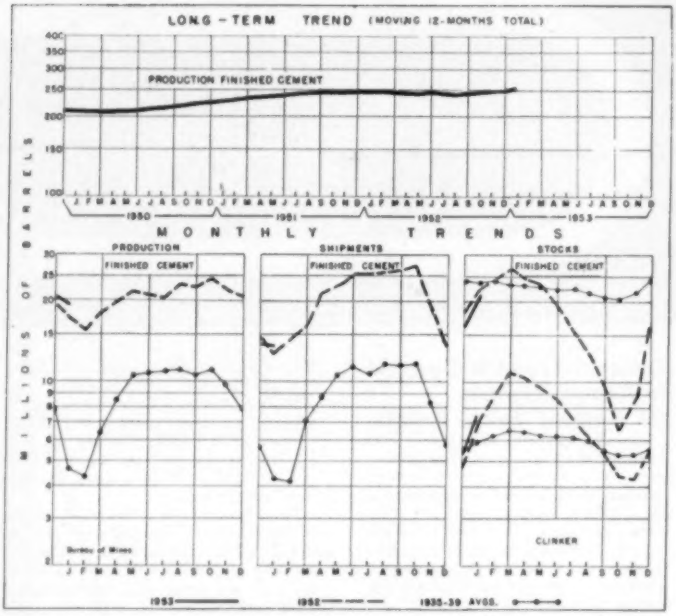
The plant is being constructed and operated by The Ralph Rogers Company, which operates crushed stone plants in Indiana and Tennessee.

Princeville Stone Company Sustains $30,000 Fire Loss

A fire at the Princeville Stone Company, Princeville, Ill., destroyed part of the garage and its contents. Principal damage to a bulldozer, a road grader, and a large stock of tires and repair parts was expected to total about $30,000.

The fire was believed to have been started by gasoline that was placed too close to the furnace. All employees in the garage at the time were able to get out without injury.

The production of roofing granules in 1951, as reported by producers to the U.S. Bureau of Mines, amounted to 1,614,779 short tons, valued at $24,284,137, a decrease of 10 percent in both quantity and value, as compared with 1950. The average value showed an increase of 10 cents a short ton over 1950. The production of natural granules decreased 12 percent, and artificially colored and brick combined 9 percent. The average value for natural granules dropped to $8.08, but artificially colored and brick granules increased to $17.57.



SUMMARY — Production of finished portland cement in January, 1953, totaled 18,855,000 barrels, as reported to the U.S. Bureau of Mines — an increase of 11 percent over the January, 1952, figure. Mill shipments totaled 13,520,000 barrels — a 6 percent increase over shipments in January, 1952 — while stocks of 21,292,000 barrels of finished cement on hand December 31 were 5 percent lower than those at the end of January, 1952. Clinker production during the month totaled 21,129,000 barrels — 8 percent more than in January, 1952.

PRODUCTION — One hundred and fifty-six (156) plants located in 37 states and Puerto Rico reported a production of 18,855,000 barrels of finished portland cement during the month, as compared to 151 plants, which manufactured 17,039,000 barrels in January, 1952. Clinker production during the month totaled 21,129,000 barrels, as compared to 19,569,000 barrels in the previous January.

SHIPMENTS — Mill shipments of finished portland cement were 6 percent higher than in January, 1952, and totaled 13,520,000 barrels. Shipments were greater in 11 districts and lower in 9 districts than they were in the preceding January. The percentage changes ranged from a 41 percent increase in the southern California district to a decrease of 21 percent in Tennessee. Other major gains were registered by the Colorado-Arizona-Wyoming-Montana-Utah-Idaho, the Virginia-Georgia-Florida-Louisiana-South Carolina-Mississippi, the Illinois, and the Oregon-Washington districts. Shipments in Texas declined 4 percent.

STOCKS — Mill stocks of 21,292,000 barrels of finished portland cement were on hand January 31, 1953 — 5 percent less than on the same date a year ago — while stocks of clinker amounted to 7,431,000 barrels — 5 percent higher than at the same time last year.

3M Sales Hit New Mark Of $185,241,760 in 1952 As Expansion Continues

Minnesota Mining and Manufacturing Company sales for 1952 reached an all-time peak of $185,241,760, officials of the firm reported.

Profits before taxes were $41,389,995, highest in 3M's 50-year history. Federal income taxes of $25,300,000 left a net income of $16,089,995. Income after taxes in 1951 was $15,738,452. The 1952 sales volume was 8.9 percent over the previous record of $170,067,527 set in 1951.

The firm's record net income of $20,318,904 was established in 1950, when profits before taxes totaled $41,030,904 and income taxes were $20,712,000.

The net earnings for 1952 amounted to $1.96 per common share, as compared with $1.92 for the previous year. At the close of 1952 there were 8,025,856 shares outstanding, an increase of 34,414 over the close of 1951.

Additions to plant during 1952 totaled $9,000,000, bringing to $67,300,000 the amount invested in new facilities since 1946 to serve an increase in sales from $75,000,000 in 1946.

Plans to erect a $3,000,000 central research laboratory in St. Paul, first step in a long-range expansion program for its varied research endeavors was announced by the firm earlier this year.

About 85 percent of the company's sales volume last year was in products which have been marketed as a result of 3M's own research and product development.

● Here is a group picture of the "Quick-Way" officials and district representatives who attended a five-day meeting recently. Top row, left to right: John R. Koppenhafer, Lexington, Ky.; Leonard E. Overholt, Kansas City, Mo.; Luke E. Smith, president of "Quick-Way"; John Malvern and Cecil W. Terrel of Denver; Herman W. Johnson, Durham, N. Car.; Malcolm I. Phelps, Denver; Magnus C. Anderson, Huntington, Ind.; Paul Grimm, Oklahoma City, Okla.; Hugh P. Campbell, plant superintendent, Denver. Center row, left to right: Galen E. Broyles, Denver, advertising agency executive for "Quick-Way"; William D. Mitchell, counsel, and Dan S. Heffron, sales manager, Denver; Charles J. Evans, Houston, Tex.; Avart D. Sobey, San Jose, Calif.; Lee Wagers, Atlanta, Ga.; Howard H. Reynolds, vice president, Denver; Eugene H. Herman, Needham, Mass.; Robert G. Herbst, office manager; and Walter W. Cornell, chief engineer. Front row, left to right: Elon Arndt, Albuquerque, N. M.; Duncan A. Lowe; Gerald E. Hazelhurst, parts manager; Lowell Griffith, Denver; and Leonard Endeward, Minneapolis, Minn.

Albert B. Stall, Treasurer Of Portland Cement Assn., Dies

Albert B. Stall, who was for the last six years treasurer of the Portland Cement Association, died unexpectedly of a heart attack at his home in Wilmette, Ill., on February 25.

Mr. Stall joined P.C.A. in 1916 as assistant treasurer. He was elected to the post of treasurer in 1947. Mr. Stall served on the accounting staff of the Chicago Tribune for five years before joining the association.

Mexico's Cement Production High Despite Handicaps

Mexican production of cement of all types during 1952 reached a new all-time high of 1,750,000 tons, according to the National Chamber of the Cement Industry. This organization also stated that the industry reduced production by at least 250,000 tons due to lack of demand in domestic markets and conditions making it impossible to ship surpluses to foreign markets. Value of the production was reported at 245,000,000 pesos ($28,356,000).

Three factors were cited as responsible for inability of the cement producers to ship abroad: high railroad freight rates; excessive stevedore charges at Mexican ports; and lack of national freighters to move cement cargos.

With respect to possible national consumption during this year, a spokesman for the Chamber expressed the hope that this would approach 2,000,000 tons. In the last few years Mexican cement consumption has been rising at the rate of approximately 100,000 tons a year, with 1951 figures at 1,535,000 tons.

The cement industry organization insists that capacity now is at least 2,000,000 tons, and that during the course of this year this can be further increased by another 300,000 tons through amplification of facilities in such major plants as Cementos Mexicanos de Monterrey, Cementos Anahuac of Tlalnepantla, and La Tolteca of Tolteca, Hidalgo. With national consumption apparently reaching the saturation point, the cement industry would like to develop foreign markets. Official federal aid for this purpose will be a major task this year.

Cover Picture....

● An unusual "first" is seen in our April cover picture, which shows special equipment for the first commercial production of river gravel by the heavy-media separation process on the Dredge No. 9 of the Dravo Corporation Keystone Division in the Ohio River. The method consists of placing dredged gravel into an artificial heavy liquid of finely-ground material kept in suspension in water. By varying the proportions, a liquid of any desired gravity between 1.0 and 2.5 can be maintained. All substances in the feed which are of lower specific gravity will float, while the heavier particles sink. A separate hull 50 ft. wide and 40 ft. long was designed to carry the equipment. This process permits dredging for gravel in areas formerly considered worthless because of contamination by deleterious material.

Potash Corp. of America Plans $3,000,000 Expansion

A program of modernization and expansion is being undertaken at the plant of the Potash Corporation of America at Carlsbad, N. Mex.

The project is expected to cost about $3,000,000 and will involve construction by the company of special machines designed for mining potash exclusively.

New Haydite Plant to Open At Mangan, North Dakota

Molite, a lightweight aggregate, will be processed at a plant being erected at Mangan, N. Dak., by Molite, Inc.

The new plant, scheduled to be in operation soon, will process about 140 cu. yd. of material a day. Clay and shale is obtained from a local deposit that is estimated to contain enough material for 15 years of operation. A rotary kiln will be used to expand the shale.

Dr. R. E. Lemley, who is president of a similar plant in Rapid City, S. D., will head the new organization. Elmer Clasen, who has been superintendent of the Rapid City plant, will be in charge at Mangan.

C. P. Street Elected 1953 A.G.C.A. President At 34th Annual Meeting

C. P. Street, building contractor of Charlotte, N. C., was elected president of The Associated General Contractors of America for 1953 at the association's 34th annual convention. John MacLeod, of Paramount, Calif., was elected vice-president. They took office at the conclusion of the four-day meeting, largest ever held by the group. A total attendance of more than 1,500 from all over the country was recorded.

Mr. Street, who is secretary and general manager of McDevitt & Street Co., of Charlotte, succeeds A. S. Horner, of Denver, as head of A.G.C.A. The association's more than 6,000 members each year perform over 80 percent of the nation's contract construction work, as well as a large volume of work overseas. William Muirhead, Durham, N. C., is secretary-treasurer, a permanent office.

Eighteen national directors of the association also were elected by the mail ballot. Among them was J. Rutledge Hill, Gifford-Hill Co., Inc., Dallas, Tex.

Nat'l. Gypsum Sales Highest In History of Company

National Gypsum Company sales in 1952 hit $99,130,386, the largest in the company's 27-year history, but net earnings declined from 1951, according to Chairman Melvin H. Baker.

The 1952 sales compared with $95,489,963 for 1951; and net earnings for 1952 dipped to $7,249,480, equal to $2.84 a common share on 2,394,375 shares outstanding. In 1951 net earnings were $7,395,983, or $3.12 a share on 2,224,607 shares outstanding.

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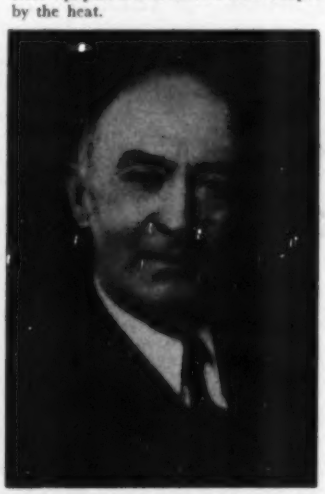
AMERICAN CANCER SOCIETY

The Rhode Island Sand and Gravel Company, Hillsgrove, R. I., was considerably damaged by a fire recently. Hoppers and conveyors were destroyed, and steel equipment and motors were warped by the heat.



● Through a regrettable error the captions under the portraits of these gentlemen, officers of the Peerless Cement Corporation, were transposed in our February issue (page 61). At the left is A. C. Eichenlaub, who recently became vice-president and operating manager of the company. At the right is Webster L. Kaiser, former vice-president in charge of manufacturing, who has resigned from this post, but who will continue to serve in an advisory capacity.

Final Figures Released For 1951 Production Of Portland Cement

Continued heavy demand resulted in a new record output of cement in 1951. Production of 246,022,476 barrels of portland cement was reported to the U. S. Bureau of Mines—an increase of nearly 9 percent over the 1950 figure. Production of the other hydraulic cements—natural, masonry (natural), and puzzolan (slag-lime)—by nine plants amounted to 3,449,463 barrels, a decrease of 19 percent from 1950.

The demand for portland cement in 1951, as indicated by shipments from mills, was 241,153,272 barrels, valued at $613,170,483, as compared with 227,756,636 barrels, valued at $535,321,123, in 1950. The average value of $2.54 per barrel in 1951, as compared with $2.35 in 1950, reflects a continued rise in operating costs. Shipments of "other" hydraulic cements amounted to 3,475,423 barrels—a decrease of 18 percent.

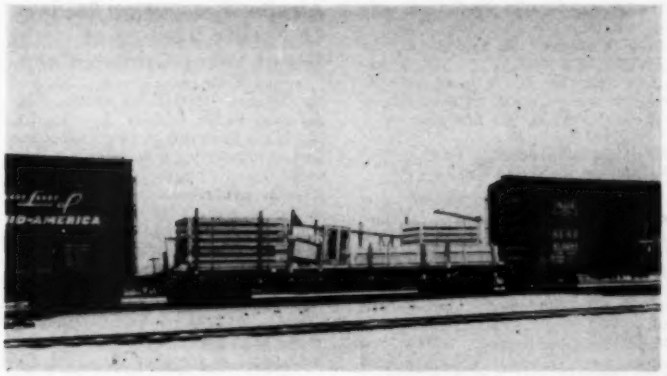
Mill stocks of portland cement on hand December 31, 1951, totaled 17,988,071 barrels—37 percent greater than on the same date a year earlier. Stocks at the end of 1951 were lower in two districts and higher in 17 districts, as compared with those at the end of 1950. Stocks of natural, masonry (natural), and puzzolan (slag-lime) cements on hand at the end of 1951 amounted to 163,363 barrels—a decrease of 14 percent from the 1950 year-end figure.

Based on the quantity of cement shipped to destinations in the various states, consumption was higher in 1951 in 29 states and lower in 19 states and the District of Columbia than in 1950. States showing outstanding percentage gains in apparent consumption were Maine, Oregon, Ohio, Florida, and Nevada. Declines were greatest in South Dakota, Arkansas, New Mexico, New Hampshire, and Oklahoma.

The estimated annual capacity of the portland cement industry at the end of 1951 was 281,532,328 barrels, as compared with 268,273,305 barrels at the end of 1950. The percent of capacity utilized in 1951 was 87.4, as compared with 84.3 percent in 1950. Percents of capacity utilized in 1951 were higher in 15 districts and lower in four districts than in 1950.

All of the types of fuel used in the portland cement industry were used in greater quantity in 1951 than in 1950. The percentage gains were as follows: coal, 7 percent; fuel oil, 29 percent; natural gas, 19 percent; and byproduct gas, 30 percent. Coal was the sole fuel used in the production of 48 percent of the total output of cement.

Shipments of portland cement by rail continued to decline, and this method now accounts for only 72 percent of the total. Truck shipments constituted 27 percent of the total, while the remaining 1 percent was shipped by boat. Bulk shipments of cement again increased considerably, and in 1951 was 61 percent of all shipments.



● A part of the 18-carload shipment equipment to Aden.

18 Carloads of Equipment Sent to Aden by Pioneer

The accompanying picture shows one part of an 18-carload shipment of rock-crushing and screening equipment on its way from Pioneer Engineering Works, Inc., Minneapolis, Minn., to Aden, British colony on the Gulf of Aden. The $300,000 shipment was ordered by the Bechtel International Corporation of San Francisco, Calif.

Designed by Pioneer Engineering in co-operation with the Anglo-Iranian Oil Company and Bechtel International engineers in London, the plant will be erected in Aden by Bechtel, assisted by Pioneer engineers. All basic equipment was manufactured in Minneapolis. When completed, the plant will be used to produce crushed and graded rock for concrete work in the construction of the new Aden refinery for the Anglo-Iranian Oil Company.

Diamond Alkali's Cement Plant Honored for Safety Record

At the Diamond Alkali Company's Standard Portland Cement Plant at Painesville, O., 126 employees were cited recently by the Portland Cement Association for their outstanding achievements in safe workmanship. Representing 1,237½ years of no-lost-time accidents, these men were awarded safety honor cards, which read as follows:

"This certifies that _____ _____ has a record of _____ years safe workmanship. His wisdom and caution have helped win the portland cement industry eminent leadership in accident prevention.

"In acknowledgment of his personal safety record and of his pledge of loyal cooperation in continuing to meet the safety demands of his work, this HONOR CARD is awarded."

While every safe worker at this plant has been honored, the greatest tribute will be presented soon when Silver Honor Roll Certificates will be bestowed upon employees having attained 25 years without a lost-time accident.

Employees at Diamond Alkali's Standard Portland Cement Plant include one with 27 years of accident-free service, five with 26 years, nine with 25 to 20 years, and 24 with 19 to 15 years.

Industrial Hygiene Foundation Names Trustees, Committees

The election of A. R. Fisher to the board of trustees of Industrial Hygiene Foundation was announced recently by Andrew Fletcher, president, St. Joseph Lead Company, New York, who is chairman of the Foundation's board. Mr. Fisher is president of Johns-Manville Corporation, New York, and has long been active in the promotion of industrial health among workers.

Appointments to the Foundation's legal committee have also been announced by Dr. C. Richard Walmer, managing director. New members are as follows: E. C. Starkey, office of general counsel, Ford Motor Company, Detroit, Mich., and Clarence G. Johnson, regional claims manager, Employers Mutual Liability Insurance Company of Wisconsin, New York, N. Y.

The Foundation, the only nonprofit research organization of its kind in the world, is composed of some 360 industrial companies from all parts of the United States.

First Aid Kit Data Sheet Issued by Safety Council

Unit First Aid Kits, a new National Safety Council data sheet, provides a useful guide to better first aid for companies with scattered operations.

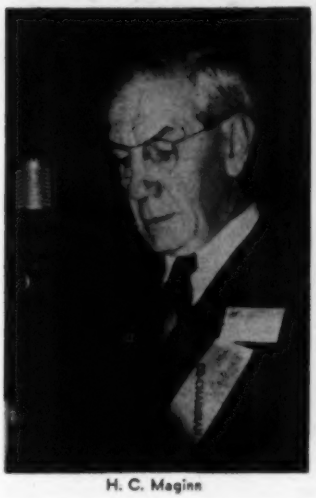
Crews on mobile equipment or groups working in isolated areas benefit from these unit kits with treatment and dressings packaged for one-time use. With no half-empty bottles and half-used rolls of gauze, the kits remain sanitary during periods of infrequent use.

The kits come in four sizes. As a rule, one 24-unit kit should be used for each 50 employees. For smaller groups 10- and 16-unit kits are satisfactory.

Copies of *Unit First Aid Kits*, data sheet D-202, are priced at 17 cents each. Quantity prices are proportionately less. For additional information write the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Employee Safety Program For Minerals Industries Urged by California Group

Recommendation that active employee safety committees be organized in all mineral industry plants, regardless of size, was made by the Mineral Extraction Industries section of Governor Earl Warren's annual California Industrial Safety



H. C. Maginn

Conference in Los Angeles on February 13 and 14.

Section members blueprinted a practical program for plants with more than 20 employees, and made suggestions for modified activities in plants of smaller size.

They acted under joint chairmanship of H. C. (Pat) Maginn, executive vice-president of Calaveras Cement Company, and Porter E. Vandewark, treasurer of Operating Engineers Local 3. Section membership comprised representatives of labor, metal mining, cement manufacture, nonmetallic mines and aggregates industries.

The section report pointed up the importance of enthusiastic participation by plant owners and managers to assure the success of safety programs.

It was recommended that all safety committee efforts be on company time, and that individual employees be encouraged to submit safety suggestions to the committee for action.

Among the members of the section, in addition to the co-chairmen, were the following:

For the cement and nonmetallic minerals industries—Robert A. Kinzie, manager, Santa Cruz Portland Cement Company; P. S. Haas, assistant works manager, Permanente Cement Company; and A. G. Lang, division superintendent, Ideal Cement Company.

For the aggregates producers—R. K. Humphreys, president, Pacific Coast Aggregates, Inc.; John N. Asmussen, superintendent, Blake Brothers Quarry; and H. L. Purtill, superintendent, Granite Rock Company.

$50,000,000 Inland Project At Steep Rock Lake, Ont. To Be Headed by Cayia

Inland Steel Company's $50,000,000 iron mining project at Steep Rock Lake, northwestern Ontario, will be developed under the direction of A. J. Cayia, man-

A. J. Cayia

ager since 1946 of the company's iron mines and quarries.

Mr. Cayia has been made vice-president and general manager of Caland Ore Company, Ltd., the firm's Canadian subsidiary, which has leased the Steep Rock ore body. He has complete responsibility for developing the Steep Rock property, which is described as the most important individual project ever undertaken by the steel company.

In view of the magnitude of the new operation, Mr. Cayia will devote most of his time to it and will relinquish some of his present responsibilities. He will continue as president of Inland Lime & Stone Company, the steel company's limestone division, and maintain his office at its Manistique, Mich., headquarters as well as in the Chicago headquarters of Inland.

Mr. Cayia joined Inland in 1928 to develop its limestone quarry and preparation plant, and its harbor at what is now Port Inland, Mich. He built the property into an outstanding operation acknowledged to be one of the best in the United States, supplying a large segment of the steel industry in addition to Inland.

He was appointed manager of mines and quarries in 1946 and has been in charge during an active period of expansion. Earlier he had been with the M. A. Hanna Company, which he joined in 1914.

Old Mine Property Converted For Fertilizer Production

Columbia Quarry Company, St. Louis, Mo., has purchased the buildings, machinery, tracks, and other surface property of the Superior Coal Company's No. 1 mine at Eagarville, Ill.

It is said that the property will be converted to a fertilizer plant, using materials quarried in Missouri. W. E. Schmidt, vice-president, of Columbia, is expected to manage the new plant.

Revision of Geology Text Published as Third Edition

A recently published volume which is of interest to many producers of nonmetallic minerals is the third edition of *Introduction to Geology*. Authored by the late E. B. Branson, professor of geology and paleontology and the late W. A. Tarr, professor of geology and mineralogy, both of the University of Missouri, this edition is a revision and modernization of the textbook prepared by Carl C. Branson, professor of geology at the University of Oklahoma, and W. D. Keller, professor of geology at the University of Missouri.

This textbook deals with both physical and historical geology and discusses geologic processes and history in understandable language. Many new illustrations—a number of them aerial photographs—have been added, as well as charts and drawings. To make the approach to geological thinking more logical, the order of presentation of much of the material has been revised. There are new sections to bring the record up to date—for example, the story of Paricutin (Mexico's newest volcano) and descriptions of earthquakes in Assam, India. Published by the McGraw-Hill Book Company, Inc. 492 pages. Price, $5.50 per copy.

1951 Fire Clay Production Exceeds 11,000,000 Tons

Fire clay sold or used in the United States in 1951 was the largest yearly tonnage in the history of the industry, exceeding the previous high year of 1948 by 20 percent and 1950 by 24 percent, according to reports by producers to the U. S. Bureau of Mines. Total production for all states in 1951 was 11,852,517 short tons, valued at $48,740,596. An expanded national economy and increased activity in the refractory and construction industries beginning in 1950 and carrying over into 1951, were the governing factors effecting the increase. Of the major fire clay producing states only 2 (Utah and Washington) reported decreases; the remaining 15 states reported increases.

The principal uses of fire clay in 1951 were as follows: refractories manufacture, 6,892,722 short tons (13 percent increase over 1950; and heavy clay products, 4,615,634 short tons (12 percent increase over 1950). Refractories and heavy clay products, combined, used 97 percent of the total tonnage in 1951. Several of the less important uses such as high-grade tile, architectural terra cotta, and chemicals, showed decreases in 1951, compared with 1950.

In 1950, Ohio ranked first in fire clay output, followed by Pennsylvania, Missouri, Kentucky, California, Indiana, and Illinois. These seven states accounted for 76 percent of the total production.

Alexite Properties Sold To Perlite Division of Great Lakes Carbon Corp.

In one of the major events of the perlite industry, Great Lakes Carbon Corporation, Perlite Division, Los Angeles, Calif., has purchased all properties of the Alexite Engineering Division of the Alexander Film Company, according to an announcement released by Walter Gramm, senior vice-president of Great Lakes Carbon Corporation. Transfer of ownership and management became effective on February 13. The decision of the Alexander Film Company to dispose of its Alexite Engineering Division was brought about by plans to concentrate operations in the motion picture and television film business.

Alexite, a pioneer producer of perlite ore, is reportedly one of the largest perlite companies in the nation. Included in the transaction are Alexite's mine at Rosita, Colo., and the mill at Florence, Colo.

Great Lakes Carbon Corporation, Perlite Division, operates a large perlite mine at Socorro, N. M. Great Lakes Carbon

● J. Don Alexander (left), president of Alexite Engineering Division, and E. A. Harris, Great Lakes Carbon.

ships ore to a national network of exclusive franchisees, who process the perlite ore and distribute it under the trade-name Permalite to the building products trade. Great Lakes Carbon also distributes perlite under the following trade-names: Strata-Crete and Strata-Seal to the oil industry; Skilkast, to the foundry industry; and Grellex, to various other industries. In addition, the company mines perlite ore and ships it to numerous licensees and independents throughout the country.

Great Lakes Carbon will operate the Alexite mine and mill, utilizing existing equipment and personnel. Much of the the output of the Alexite mine will be channeled to the pre-mixed segment of the industry.

Discussing the purchase in Los Angeles recently, D. Loring Marlett, assistant general manager of Great Lakes Carbon Corporation's Perlite Division, expressed the opinion that the ultimate result of the transaction will be a general expansion of the entire perlite industry.

Over 13,000,000 See Films Of U.S. Bureau of Mines Showing Mineral Resources

Showings of Bureau of Mines informational motion pictures during 1952 exceeded by more than 20,000 the all-time record established in 1951, according to J. J. Forbes, Bureau Director. The films, which deal primarily with mineral resources of the nation, had 218,564 showings last year, as compared with 200,000 showings in 1951. More than 13,000,000 persons were reported to have seen the films.

The films are sponsored by private industry under an arrangement whereby the sponsor pays the entire cost of production, including photography, developing, and printing, and provides the Bureau with prints for general circulation.

These co-operative industry-government motion pictures are available from the Bureau of Mines for free loan to organized groups. Last year, schools and colleges continued to be the principal borrowers of Bureau films, but they also were exhibited to many civic and service clubs, patriotic, religious, and workers' organizations, technical and scientific societies, industrial training classes, and defense plant forces.

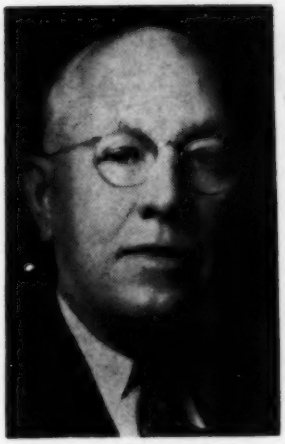
Requests for loans of film may be addressed to the Bureau of Mines Central Experiment Station, 4800 Forbes Street, Pittsburgh 13, Pa.

Miniature Fork Lift Truck Copies Original's Features

An authentic reproduction of the Model 480-P fork lift truck was recently introduced by Towmotor Corporation, Cleveland, Ohio. Designed to the 1/16-scale standard for precision-engineered models, and constructed of steel and plastic to withstand rough handling, this Towmotor replica captures in intricate detail many of the basic features of the original Towmotor fork lift truck. Moving a tiny gear shift lever tilts the mast to varied angles; forks may be raised and lowered by means of a lever projecting slightly from the rear of the "truck." Even the tires are actual scale models of those made by nationally known tire manufacturers for Towmotor mass handling equipment.

Finished in regular Towmotor colors, this attractive miniature measures only 5 in. in height when the mast is lowered and 8 in. from the rear to the tip of its shiny forks. In response to numerous requests, the model has been made available at $3.50 postpaid through Towmotor Corporation, Advertising Division, 1226 E. 152nd St., Cleveland 10, Ohio.

● A faithful replica of a fork lift truck.



Fred O. Earnshaw

National Safety Council Issues 1953 Poster Directory

A new 1953 directory of occupational safety posters has been issued by the National Safety Council, 425 N. Michigan Avenue, Chicago 11, Ill. The 72-page book lists and shows 756 miniature posters, many of them in colors, available through the council. In the table of contents the posters are listed in broad subject classifications. Dozens of the arresting placards are appropriate for the nonmetallic mining industries, some shown in the sections on manual and mechanical materials handling and others in various classifications.

National Safety Council staff engineers each month provide specialized automatic poster service to the following types of operations: quarrying, cement, (including gypsum and asbestos mining and processing) construction, and related fields.

National Gypsum Co. Moves Export Sales Department

National Gypsum Company spokesmen have announced the transfer of the firm's export sales department to New York City and the appointment of William Croscup as manager of export sales. Located in the Graybar Building on Lexington Avenue, the department is expected to be in full operation by April 1.

Mr. Croscup will direct all export activities except the Canadian contractual sales, which will be transacted at the home office in Buffalo.

The Newport Sand and Gravel Company, Newport, Ore., formerly owned by Roy Sawyer, has been sold to Ollie Williams, owner of the Newport Ready-Mix.

F. O. Earnshaw Succumbs To Heart Attack at 77 After Distinguished Career

Fred O. Earnshaw, former president of the Carbon Limestone Company, Lowellville, Ohio, who was for many years a familiar figure in the stone and quarry business, died on March 3 at his home near Hillsville, Pa., of a heart attack. He was 77 years old.

Mr. Earnshaw's family had had limestone and quarry interests for several generations in England. After completing his education he was affiliated with the Western Stone Company at Joliet, Ill., and subsequently joined his father in establishing the Earnshaw Stone Company at Lemont, Ill. Some time later he became traveling superintendent for the France Stone Company of Sandusky, Ohio.

In 1918 he joined the Carbon Limestone Company as superintendent of its Hillsville quarry. Under his direction many technical developments were perfected. Originally known as a fluxing stone producer, the firm became noted for its diverse products, which include agricultural limestone, road stone, aggregate for Amiesite, concrete brick and block, and stone sand, in addition to flux.

It is said that the first wagon drills were developed at the Hillsville plant, including an air-feed and hoist mechanism. One of the earliest washers also was built there. Strict technical control, employing mechanical sampling of every carload, was initiated by Mr. Earnshaw at this operation. The power dump designed by him was used at Hillsville for the first time; it is now used on many makes of quarry cars. In 1928 he became president of Carbon Limestone, succeeding Robert Bentley Sr. He retired early in 1948 and had been in fairly good health since that time.

Many honors came to Mr. Earnshaw. He was president emeritus of the Pennsylvania Stone Association; a past-president and an honorary lifetime director of the National Crushed Stone Association; and a director of the Carbon Limestone Company, the Carbon Concrete Brick Company, the Elkins Limestone Company, Elkins, W. Va., and the Waukesha Lime and Stone Company, Waukesha, Wis.

Both sales and earnings declined from the 1951 level during 1952, according to the published report of the United States Gypsum Company. In 1952 the company and its subsidiaries had a net income of $19,031,216, against $19,820,261 the preceding year. The 1952 income, realized on sales of $184,900,386, was equivalent to $11.55 a common share; this compares with $12.05 a share for 1951, when sales reached $188,125,170.

The Tecon Corp., Dallas, Texas, is opening a quarry north of Sedalia, Mo., to supply crushed stone for airport construction at the Sedalia Air Force Base.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

A BRIEF article in the April, 1923, issue of PIT AND QUARRY emphasized the importance to producers of visiting and studying the operations of other companies. Operators were urged to leave their own businesses whenever possible in order to study the methods and equipment of their contemporaries, as a relaxation from the steady grind of their own duties, and in order to learn better and more economical production methods. This type of information has always been of primary importance to producers of nonmetallic minerals and, even in those days, received commensurate attention in these pages. Except for actually visiting an operation there is no better way to keep up with progress than to read about what other producers are doing.

A feature of this issue was another article by Oliver Bowles entitled *Rock Loading at Lime-Plant Quarries*. In this special article Mr. Bowles, then mineral technologist, U. S. Bureau of Mines, thoroughly covered the advantages and disadvantages of loading rock into quarry cars either by hand or with power shovels under various conditions. This subject was very timely, as the lime industry then was just beginning the trend toward fewer and larger plant which has since gained such momentum. In order to obtain even more information on this controversial subject Mr. Bowles asked PIT AND QUARRY readers to send in to us the answers to six pertinent questions regarding their own loading operations.

In the April, 1923, issue was announced the birth of a new magazine—the *Explosives Engineer*—published by the Hercules Powder Co., Wilmington, Del., and edited by Harry Roberts Jr. and N. S. Greensfelder. We quote: "The new publication is delightfully gotten up in every detail and promises to be a very satisfactory presentation of the explosives industry from month to month, both in pictures and text." As we all know, this contemporary publication has more than lived up to its early promise.

In line with its policy of providing operating data on outstanding plants PIT AND QUARRY in that issue featured an 11-page profusely illustrated article on the new plant of the Virginian Limestone Corp., at Klotz, Va., which is still one of the important operations in this field. The features described are too many to permit even brief mention, but one was a 1200-ft. cableway across the New River to permit loading on two railroads instead of one. At this location the company also pioneered the production of stone sand.

The men heading this important new venture were all well known to the crushed stone industry in another area. Charles A Klotz, president, had been prominently identified with that industry for many years and operated a number of plants in and around Chicago. G. W. Lenzie, vice-president, had a similar background and has for many years been vice-president and general superintendent of the Material Service Corp., Chicago. J. Allen McGraw, general manager, and W. B. Bobbitt, superintendent, were also from the Chicago area.

In a separate shorter article Mr. Bobbitt described a traveling machine shop built on the chassis of an old steam shovel and equipped with a forge, an anvil, a drill sharpener, etc. This solved the problem of making repairs on the job, rather than hauling machines to a shop at the plant, and also greatly facilitated the sharpening of drill steel.

The mining of diatomaceous earth or kieselguhr at Lompoc, Calif., by the Celite Products Co. was described by E. D. Gardner, mining engineer, U. S. Bureau of Mines. The products made included sawed refractory brick, compressed refractory brick, ground filtering material, lightweight concrete filler, insulation material, polishes, and nitroglycerin absorbent for dynamite.

A detailed article told of the progress made on the first unit of the $3,000,000 plant of the Signal Mountain Portland Cement Co. near Chattanooga, Tenn. The first 1,250-bbl. unit of this 5,000-bbl. plant was to be in operation by June.

Associations received their usual attention in this issue. Stone producers of Iowa had just organized the Iowa Stone Producers' Assn., with headquarters in Cedar Rapids. Paul L. Nauman, vice-president of the Eagle Point Lime Works, was elected president. Reports were also given of the convention of the National Agstone Association, one session of which was held at Cleveland, Ohio, on March 5 and the second at Harrisburg, Pa., on March 6, 1923. The c' ief objectives were: (1) founding and financing an agstone fellowship at Ohio State University; (2) establishing a research and review service; (3) financing an advertising program. Such stalwarts as A. Acton Hall, H. H. Brandon, and J. C. King attended both meetings.

The U. S. Bureau of Mines accident report for the crushed stone industry for 1921 showed that the fatality rate dropped from 2.31 per thousand employees in 1920 to 2.00 in 1921, but the injury rate rose from 145.51 to 174.54 based on a standard of 300 working days per year. This detailed 6-page report gave all the pertinent information necessary for any producer to be able to find and correct the danger points in his own operation.

In the news was the nearly completed new plant of the Lehigh Portland Cement Co. at Birmingham, Ala., the sixteenth plant of that company, of which General Harry O. Trexler was founder and president. The International Cement Corp. announced a $1,000,000 expansion for the recently acquired plant of the Bonner Portland Cement Co., Bonner Springs, Kans. Also announced was a $200,000 expansion program for the Hudson River Trap Rock Company's plant at Marlborough, N. Y.

Southeastern Vermiculite Co. To Process S. African Ore

Theron A. Holmes, president of Macon Brick and Block Company, Macon, Ga., has established a new division in the company known as the Southeastern Vermiculite Company. A new building erected on the property of the company houses an efficient, up-to-date vermiculite exfoliating plant.

Southeastern Vermiculite Company will operate as a licensed associated plant of American Vermiculite Corporation, featuring American brand vermiculite nuggets in all grades, as well as the other proprietary mixed and manufactured products produced by Amverco plants.

Building erection and plant installation has been under the engineering direction of S. A. McDowell. The plant is equipped with an Amverco incline-type furnace with grade separation after expansion to insure product uniformity.

American brand home insulation, concrete aggregate, plaster aggregate, fertilizer conditioner, and industrial grades will be packed in individually colored 4-cu. ft. bags. "GLITTER", the trade name for horticultural grades, will be available in bags of various sizes for the convenience of the consumer. Products of Southeastern Vermiculite Company will carry the approval of Underwriters' Laboratories and of the Vermiculite Association.

Crude ore shipments for the Macon plant will arrive from the port of Lourenco Marques, Portuguese East Africa, at Tampa or Savannah.

• A closeup of rock breaking operations in the Franklin Limestone Company's quarry near Nashville, Tenn. Breaking of oversize rock is accomplished with a dropball mounted on a Hyster Hystaway; a Caterpillar diesel D8 tractor, equipped with a No. 85 bulldozer, serves in cleaning up the quarry floor.

Reactivated Gold Dredge "Gravel Gertie" Proves Worth

another ON THE SPOT report

OPERATORS of a successful sand-and-gravel business at Chillicothe, Mo., for nearly 20 years, the Cooley brothers—C. G. and L. M.—broadened their field of operations some years ago when they began mining coal and gold in Colorado.

By HARRY F. UTLEY

The coal-mining phase of the Colorado ventures continues good, but the dredging of gold ground to a sudden stop a few years back when the government froze the price, making operations unprofitable. One of the dredges was in "dry-dock" near Fairplay, Colo., when the Cooleys decided to put it back in service, not for gold, but for producing commercial aggregates. They reasoned that the high-volume, low-cost productivity of this equipment might easily be adapted to sand-and-gravel production in Denver, envisioning operating costs at rock-bottom levels in an area where the dig-load-haul-process-haul-stockpile and haul-again sequence seemed to be the established practice.

Today the Cooley Gravel Co. of Denver is doing a booming business based entirely upon that theory. The converted dredge, nicknamed the "Gravel Gertie", with all processing equipment aboard, went into large-scale operation in September, 1951, and can easily turn out 250 t.p.h. of washed and sized material at a production cost per ton that may be the lowest in the entire country. Besides, gold is recovered as a by-product—nearly $100 worth daily! Neither the pit-run nor the finished aggregate is transported, the floating plant following closely on the heels of the walking dragline whenever the big excavating machine is moved. Stockpiled directly into long, windrow-like piles by boom-type stackers from the boat, the only hauling necessary is the transportation of the finished product from these stockpiles to the job. And this delivery is not a company activity. The Cooleys operate no trucks, all aggregates being sold f.o.b. the plant.

At the Cooley plant, at Denver, Colo., E. J. Wemlinger, superintendent, H. O. Enderud, chief engineer, and C. G. Cooley, president, pose before the office laboratory building.

The company owns or controls 130 acres of excellent-grade deposits in the Clear Creek Valley in suburban Arvada, the good material extending down an average of 18 ft. to shale bedrock. Test borings indicate a supply of 4,500,000 tons. Under the scheme of excavation approved by the Adams County Planning Commission before it gave its okay to the project, overburden and waste oversize are discarded to form wide strands of land as the dragline and plant eat into the deposit. Eventually, the site will be worked out, leaving deep ponds or lakes between the strips of higher ground. Streets will be laid out, homes built on these strands, pond areas will be stocked with fish, and the entire 130 acres will be planted and landscaped to form an unusual community of homes in park-like, water-bordered surroundings.

Back in April, 1951, the dredge was dismantled up in the mountains and trucked down to the plant site, where reconstruction work was carried on under the supervision of C. G. Cooley, Orville Enderud, his chief engineer, and the Bodinson Mfg. Co. of San Francisco, which

Energetic old lady produces washed gravel at rate of 250 t.p.h. and gold, too, for Denver firm.

A general view of the Cooley Gravel Co. operation, the floating plant following the dragline closely along the cut. Note the 150-ft. long stacker boom.

had built the gold dredge originally. As designed, the dredge was, of course, merely a gold producer, the gravel being rejected over the side as soon as the gold-bearing fines were extracted. In the conversion, with space extremely limited, a lot of conveyor belting had to be installed to handle and re-circuit two sizes of finished gravel and one of sand. Space had to be provided for screens, classifiers, dewaterers and a crusher. Pontoons and ballast were added, and the weight was distributed so that the 3-belt, 150-ft. long stacker boom would not capsize old Gertie. More than half the riffles were removed, and a heating system was installed to allow comfortable operation in cold weather. Less than six months were required for the complete job, and in September of the same year the floating plant went into regular production. To open up a pond to float the dredge, a Diamond portable plant was temporarily in production on the site while the dredge was being rebuilt, supplying the initial tonnage of a 180,000-ton contract for constructing the Denver-Boulder Turnpike. During the first month's operation, the floating plant produced nearly 80,000 tons of aggregates, reaching an hourly output of over 275 tons at its peak.

In operation, the Bucyrus-Erie 2,300-v. electric-powered walking dragline, swinging a 3½-cu. yd. AX bucket on its 90-ft. boom, loads the 14- by 13½-ft. opening of the receiving hopper on the converted dredge. The dragline works a 65-ft. cut, the boat following down the cut by means of four shore-line cables controlled by a Bodinson 4-drum winch. A 12-in. by 19-ft. steel spud anchors the hull.

Nozzles behind the hopper sluice the material directly into the huge 6- by 42-ft. trommel, the chief piece of equipment on board. It scrubs and sizes most of the gravel, scalps off the oversize, and takes out the sand via a 20-ft. long round-hole-perforated jacket of steel plate. (The trommel was an existing piece of equipment, the sand jacket having been installed during the conversion.) Plus 7-in. boulders are washed off the end, while two sizes of finished gravel are produced in this initial pass. These usually are ¾ to 1½ in., and No. 4M to ¾ in., the two finished sizes being changed on occasion as required by replacing screen sections on the trommel barrel. Fines passing the sand-screen section after processing are stockpiled, as are the two blends of gravel, by an unusual stacker-belt setup.

There are three stacker belts, which operate parallel on the common landward boom, one for each finished material. The 24-in. sand belt drops its load first, 50 ft. from the edge of the boat. The 18-in. coarse gravel belt running alongside has its head-pulley 100 ft. from the plant, while the third belt, 18-in. wide and carrying the smaller coarse aggregate, discharges 150 ft. from the floating plant. This builds up the three parallel stock-piles which increase in length as the dragline and dredge progress along the cut. Oscillating spouts, driven by take-off power from the head pulleys, distribute the material over a relatively large area in each pile to prevent segregation as the piles build up.

The 1½- to 7-in. rock scalped off

Some of the gold riffles just below the sand jacket section of the long trommel.

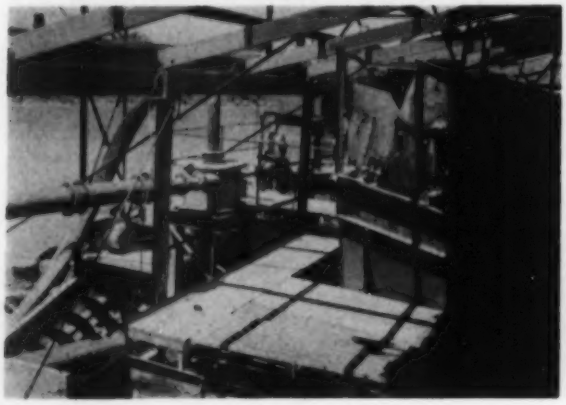
at the trommel is conveyed to a Symons 4-ft. cone crusher, the product going by another conveyor to a Pioneer 4- by 10-ft. triple-deck screen. Here the top deck is in closed circuit with the crusher, returning a plus 2-in. product. The remaining decks reject the two finished gravel sizes, which join similar-sized but uncrushed products from the trommel for stockpiling. Minus 4M throughs go to the sand classifiers.

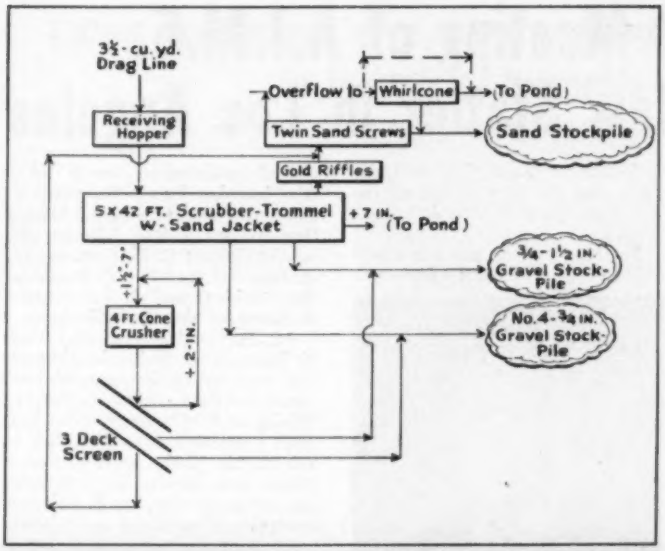
The sand circuit begins at the screen-jacket section of the trommel, all throughs being washed over the gold riffles before the sand is split to two sets of Telsmith 20-in. by 15-ft. twin-screw classifiers. Dewatered sand is recovered and stockpiled by the stacker belts mentioned earlier.

A Cottrell 25-in. Whirlcone is in the overflow circuit from one of the sand screws to recover minus 50M fines needed to balance up the sand gradation, a Kansas City Hay Press Co. 4-in. pump delivering the over-

A perspective of the walking dragline with its 90-ft. boom.

This view aboard the floating plant shows the wet cyclone for recovering fine sands overflowing from the screw classifier below. At the right is the triple-deck gravel sizing screen, in closed circuit with the cone crusher (background).





Left: Flowsheet of the Cooley plant, showing relation of converted dredge to dragline and stockpiles.

One of the twin-screw sand classifiers with the triple-belt stacking conveyor immediately above on the landward side of the floating plant.

One of the loaders filling a truck from the gravel stockpile. The material is sold f.o.b., as the company operates no delivery trucks.

flow settlings to the Whirlcone. Recovered fines from the bottom of the wet cyclone drop to a belt conveyor which feeds to the sand-stacker belt.

Principal wash-water supply is a Winsby-United 40-hp. pump which delivers 2,000 g.p.m. from the pond, sucking through a screened box. The water requirements are augmented by a smaller Ingersoll-Rand pump on deck.

Gold is removed from the riffles as mercury amalgam about once every three or four weeks and retorted right in the plant laboratory. Mr. Cooley unlocked the safe at the time of the writer's visit and exhibited some of the recovered metal—two 1-lb. coffee cans full and worth about $4,000—which is sold directly to the United States Mint in Denver.

Conveyors are, for the most part, Goodyear belting on Rex rolls and idlers. Many of the motors and drives are U. S. Syncrogear units. The big dragline also strips the 4-ft. average overburden when the processing plant is not operating. For stripping purposes a Hendrix 3½-cu. yd. lightweight perforated bucket is employed.

Trucks are loaded from stockpiles by a Pettibone-Mulliken 54B Speed Loader, a Haiss bucket-loader, or an Austin overshot loader. A Bucyrus-Erie 22B shovel is also pressed into loading service at times. Important consumers are the Spratlen Ready Mixed Concrete Co. and the Pre-Mix Concrete Co., both of Denver. Truck shipments are weighed on a Fairbanks-Morse 50-ton scale.

In addition to this operation, the Cooley Gravel Co. has a more conventional semi-portable plant in production near Boulder, Colo. This unit was kept busy during the 1952 season supplying aggregates for construction work on the Rocky Flats Atomic Energy Project.

The Cooley brothers recently made coal-industry news at their Eden Coal Co. operations near Oak Creek, Colo., when they installed a 42-in. by 2,462-ft. down-grade enclosed belt conveyor to replace the treacherous 6-mi. haul road formerly used from mine to plant. This, too, has cut costs tremendously, since the energy derived from lowering the coal down hill by the belt generates most of the power required to operate the coal-preparation plant.

(*Continued on page 75.*)

175th General Meeting of A.I.M.E. Held at New Statler in Los Angeles

MORE than 2,500 leaders in the mining, petroleum, and metallurgical fields were attracted to Los Angeles and its new Statler Hotel for the 175th general meeting of the American Institute of Mining and Metallurgical Engineers which was held there from February 16 to 19, 1953. Hundreds of informative technical papers, embellished with discussion which added further to the subjects presented, were delivered at the 85 separate sessions of the 12 divisions and branches of the institute.

Governor Dan Thornton of Colorado was the speaker at the welcoming luncheon on Monday, February 16. The incoming president, Andrew Fletcher, and the 1954 president-elect, L. F. Reinartz, were introduced at this time.

Throughout the week there were special luncheons, cocktail parties, and smokers, culminating in the annual banquet and the president's reception on Wednesday evening, February 18.

Lewis W. Douglas, former ambassador to Great Britain, and a grandson of James Douglas, who was twice president of the Institute during his life-time, was the honored guest and principal speaker at a dinner of the Mining Branch, A.I.M.E.

Mr. Douglas expressed his belief that World War III is escapable, and that a meeting between President Eisenhower and Marshal Josef Stalin might be the instrument of that escape. On the question of financial help for Europe, he went on record in favor of trade, not aid. On domestic issues, Mr. Douglas (director of the budget during the Roosevelt administration) favors a balanced budget before tax reduction. Recent removal of price ceilings will, he predicted, have little effect on prices.

Nine or ten field trips, arranged to interest each particular group, were conducted after the regular technical sessions of the annual meeting had been concluded.

Those whose primary interest lies in the realm of the nonmetallics were attracted to the tours which included visits to the Crestmore limestone mine of the Riverside Cement Company, the Colton plant of the California Portland Cement Company, and the Trona plant of the American Potash & Chemical Company.

The report of this meeting would not be complete without a few words about the new $25,000,000 Statler Hotel, which has no counterpart in this country. It is the largest hotel built in the last 20 years, having 1,300 rooms; and its five wings include a 13-story office building, shops and stores, and a 500-car garage. In appearance, outside and inside, it resembles in its modern design the modern architectural style which originated in tropical countries. There are no courts in this hotel but it has an enclosed garden-pool area which is said to contain more rare tropical plants than any other garden in California. There are other features which, with the many meeting rooms, make this an ideal convention hotel.

Andrew Fletcher, president of the American Institute of Mining and Metallurgical Engineers for 1953.

Industrial Minerals Luncheon The luncheon meeting of the Industrial Minerals Division was held on Wednesday noon with Ian Campbell, division chairman, presiding. After giving a brief resume of developments and accomplishments during the last year Mr. Campbell introduced Andrew Fletcher, newly-elected president of the A.I.M.E. Also introduced were Raymond E. Byler, past chairman of the Mining Branch, and LeRoy Scharon, the new chairman; E. H. Crabtree Jr., chairman of the Minerals Beneficiation Division; and A. Lee Barrett, chairman of the Coal Division.

M. F. Goudge, Canadian vice-chairman of the Industrial Minerals Division, told of the proposed joint meeting of the Canadian Institute of Mining and Metallurgy to be held from September 8 to 12, 1953, at the Keltic Lodge, Cape Breton Island, Nova Scotia. The new chairman of the division, Leo F. Reinartz, made a brief speech of appreciation.

Of paramount interest to PIT & QUARRY readers, perhaps, was an entire session of the Industrial Minerals Division devoted to the broad subject of mineral aggregates.

Grinding For Fines *Rod Mill Grinding for Fine Aggregates* (R. S. Barneyback, Henry J. Kaiser Company), described this phase of the current operations of the Kaiser company at Radum, Calif., where rod-mill product both supplements natural sand fines and manufactures complete sands. Aggregates industry spokesmen have contended that production of manufactured sand is often uneconomic and commercially impractical. At the Radum plant, however, over 3,000,000 tons have been rod-mill ground since 1940. Three sources of supply have been used: (1) a feed of coarse sand lying between the No. 4 and No. 28-mesh sieves, (2) medium-grained diorite crushed to a maximum size of 3/8 in., and (3) a waste pea gravel roughly graded between 3/8 in. and No. 4 mesh.

Both wet and dry grinding have been employed, with product tonnages running between 32 and 50 t.p.h. Costs have been uniformly consistent, ranging between 25 and 30 cents per finished ton, excluding book cost of feed and first cost of the grinding equipment. Gross profits from these operations have been encouraging, running as high as 67 cents per finished ton!

Resistivity Prospecting Another paper, *Earth Resistivity Surveying for Sand and Gravel Deposits* (Ivor R. Thomas, Henry

Large percentage of papers presented are of interest to industrial minerals men.

J. Kaiser Co.), explained an interesting exploratory method for evaluating potential aggregate deposits. The Kaiser plant at Radum, which produces about 1,000 t.p.h. of salable material, has been depleting its deposit by about 2,700,000 tons annually. If the concern is to stay in business, it is imperative that large tonnages of reserves be mapped out. As a preliminary step, the author studied all available information on electrical prospecting and finally acquired Gish-Rooney Type LR earth-resistivity apparatus for measuring to a maximum 200-ft. depth. Field work was performed in the summer of 1952 by a four-man crew. Resistivity tests were run against known drilling logs and exposed banks to provide calibration curves. Depth-profiles were traversed to a depth of 130 ft. and as deep as 200 ft. at certain stations. A total of 39 traverses were run and a total of 331 holes were checked.

In comparing the cost of resistivity surveying with other methods of exploration, electrical prospecting was found to have been most reasonable. Basing the comparison on 10 "holes" of resistivity testing to one test hole by conventional drilling, the cost of "electrical drilling" was found to be about 80 cents per ft. of sounding. Dragline excavating, good to depths of about 50 ft., cost the company about $1.50 per ft. of hole. Churn drilling to depths of 105 ft., using casing, cost $3.25 per ft. A quoted price from a driller using a rotary rig, for a 5-in. hole without casing and sealed with mud, was $2.75 per ft. of hole.

Dr. Ian Campbell, Canadian vice-chairman, Industrial Minerals Division, A.I.M.E.

Leo F. Reinartz, president-elect of A.I.M.E. for 1954.

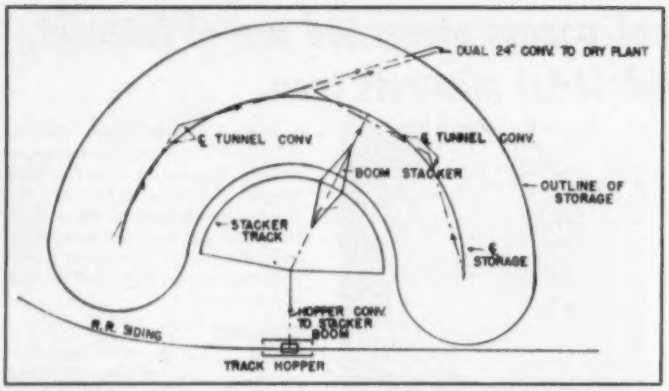
Although the cost of resistivity surveying is much lower than that of other methods, the author believes that the information it produces is not entirely positive. In his opinion, an extensive resistivity survey together with a few carefully chosen drill holes for checking purposes is the best and most logical approach to the prospecting problem.

Alkali Reactivity The history and mechanism of alkali-aggregate reaction, and the petrography and mineralogy of reactivite aggregates were well covered in the paper, *Alkali Reactivity of Natural Aggregates in Western United States* (William Y. Holland and Roger H. Cook, U. S. Bureau of Reclamation). Although alkali-aggregate reaction during the hydration of cement in concrete has been identified in structures in the East and Southeast, it is of particular concern in the West because of the widespread occurrence of potentially reactive rocks and minerals. These include various volcanics, the silica minerals, opal, chalcedony, tridymite, and cristobalite; zeolite, heulandite; and certain phyllites. Such deposits were pin-pointed in the basins of the Missouri, Platte, Rio Grande, Columbia, and Colorado rivers and in those of the Sacramento and San Joaquin rivers in California. Interest and research into the problem by the Bureau stems from the fact that the reaction is especially objectionable in mass concrete structures such as the huge dams it builds and sponsors.

Expanded Shale *The Expanded Shale Aggregate Industry of the Pacific Northwest* (A. O. Bartell, Raw Materials Survey, and Robert E. Brooke, Ready Mix Concrete Company, Portland, Oreg.), traced the development of two producing concerns, Smithwick Concrete Products Company and Empire Building Materials Company, both of Portland, in providing that area with a combined output of hundreds of tons of high-grade lightweight aggregates daily. Both concerns utilize raw material excavated in the Keasey shale west of Portland. Each operation has already been covered in considerable detail in the pages of PIT AND QUARRY. Smithwick markets its product under the licensed tradename "Haydite", while Empire's output is known as "Lite-Rock".

Wet Phosphate Rock Storage An interesting paper entitled *Wet Phosphate Rock Storage and Handling at American Cyanamid Company's Brewster, Florida, Plant* was given by George L. Lyle Jr., maintenance engineer

M. F. Goudge, chairman, Industrial Minerals Division, A.I.M.E.



The general layout of the wet storage facilities at American Cyanamid's Brewster plant.

of the Brewster plant. It described the construction and operation of a unique system of handling bulk phosphate which was installed in 1950 at Brewster after a careful engineering study of methods of material handling by the firm.

According to Mr. Lyle, the storage system there consists of a railroad spur with a hopper building and a car shaker, a track hopper and vibrating loaders, a 36-in. belt conveyor for elevating the material from the hopper to ground level, a 36-in. swinging boom conveyor for stacking the material on storage, and a system of underground tunnels and conveyors to reclaim the material for drying and processing. Mr. Lyle then proceeded to describe in detail the various units in the system.

The speaker pointed out that the boom stacker is the most unusual part of this system; it consists of a steel truss which carries the 36-in. belt and its driving mechanism. This truss, pivoted at one end, inclines upward so that the head end is about 90 ft. above the ground level; it is supported near the mid-joint by a network of two laced steel columns which travel on a semi-circular standard-gauge railroad track.

Phosphate is fed on the fixed end of the stacker conveyor and discharged over the head end to one of several storage piles beneath the end of the stacker boom. Storage is in a semi-circular pattern of separate piles which appear to resemble a kidney shape when viewed from above. (See diagram.) The stacker stores on a centerline radius of 270 ft., thus giving a capacity of 320,000 tons of gravity storage. Additional capacity may be secured by the use of a kicker and/or tractor dozer to move the material away from the discharge point.

The boom conveyor is driven by a 125-hp. electric motor through a fluid coupling and tandem pulley arrangement located near the main tail pulley. It is controlled from the operator's panel in the hopper house.

The operator controls this complete system from the hopper house. In order to speed unloading the cars are grouped so that as much of one grade as possible is unloaded at one time. Since the boom stacker is geared to a linear movement of 15 f.p.m., it is important to unload as much as possible at each location, so as to conserve unloading time.

Located beneath the point of discharge of the boom stacker is a series of reinforced concrete tunnels some 1,025 ft. in length, which are arranged in straight chords to the semi-circular arc subscribed by the boom stacker discharge, so as to accommodate reclaiming conveyors. In order to reclaim from any point on the storage and in any combination of grades, all reclaiming conveyors, each capable of handling 300 long t.p.h., are brought together at the center of the storage pile. From this center point, two 24-in. conveyors, also having a capacity of 300 long t.p.h., move to and above ground level to discharge through multiple gates and chutes to the two 24-in. inclined conveyors which feed the plant's three rotary kiln dryers.

Mr. Lyle pointed out that by means of the intricate reclaiming system any desired composite grade can be blended which is within the range of the maximum and minimum grades currently being carried in storage. He added that this is important in phosphate operations since sales contracts vary widely and mining conditions may produce many different grades within one 24-hour period.

All conveyors of the reclaiming system are controlled by the drying plant operators. All are interlocked electrically and may be operated from any point on the system simply by reaching and pulling a cord which parallels the entire system just above the operator's head.

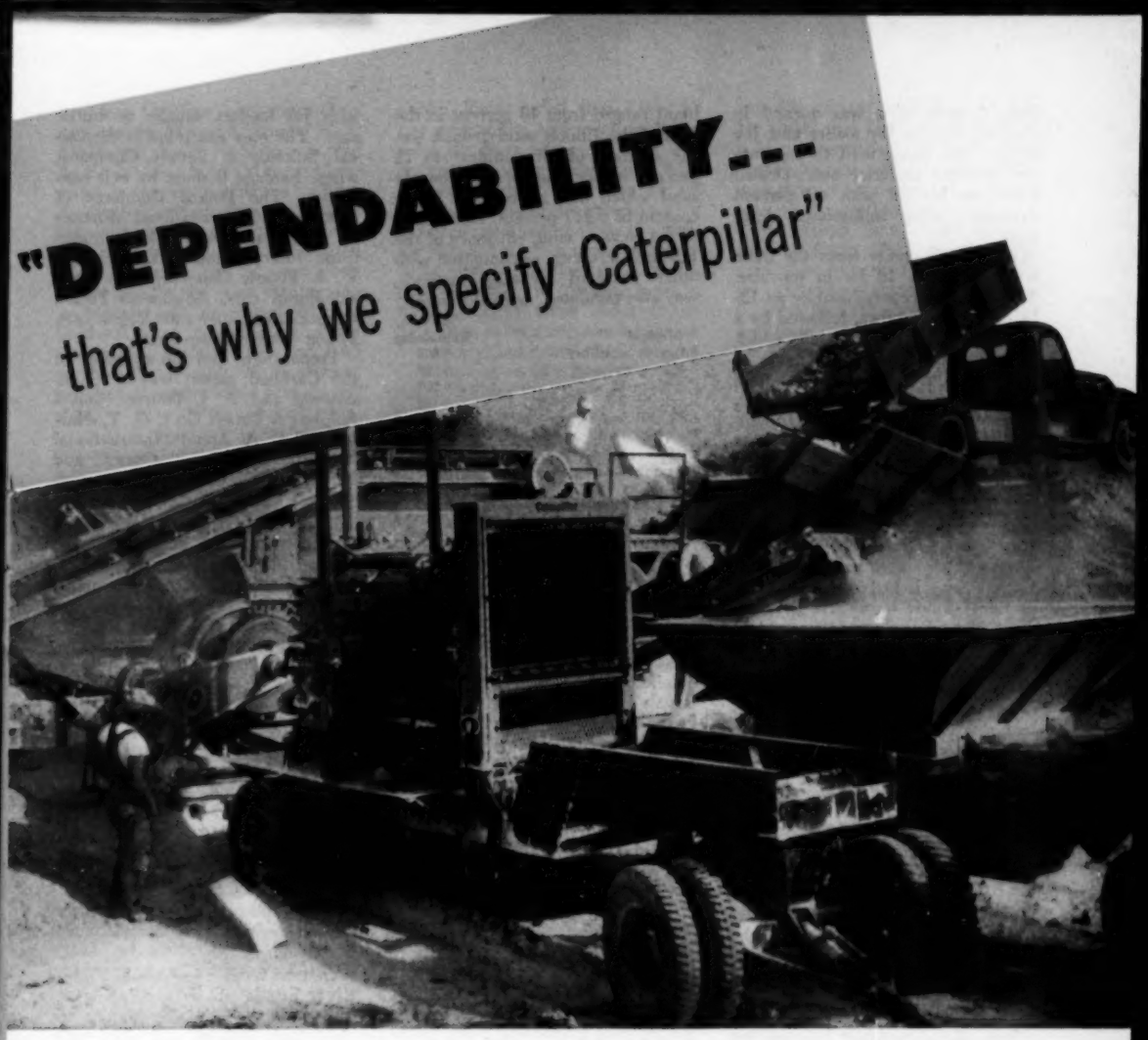
Western Phosphate Mining and processing of phosphate rock from the extensive western phosphate field has progressed from a rather static past to what is now assured to be an exciting as well as an economically sound future, in the opinion of Charles W. Sweetwood, Simplot Fertilizer Company, Pocatello, Idaho, who presented a paper on the subject at one of the Mining Division sessions.

The Simplot firm became one of the pioneers in the western reserves in 1945 on the Fort Hall Indian Reservation near Pocatello. Mining of high-grade oölitic phosphate rock (32.5 to 34.5 percent P_2O_5) began in 1946. Development of the property also proved the existence of large tonnages of phosphatic shale (24 percent P_2O_5) which usually overlaid the high-grade rock. The shale was first utilized in export shipments but later became the main source of supply for Westvaco Chemical in its production of elemental phosphorus at an electrical-furnace plant in Pocatello.

Production has risen from the 53,000 tons mined in 1946, to over 500,000 tons in 1952 and it is expected to exceed 1,000,000 tons annually in the very near future, Mr. Sweetwood declared. The company has realized the need for improved methods of handling its low-priced ore economically and is constantly striving toward that end.

Gypsum Gerald C. Mathis, mine superintendent for the United States Gypsum Company at Heath, Mont., presented an informative paper on the concern's operations in that area, particularly with reference to the mining of the raw material. The property, opened by the old Northwest Gypsum Company in 1926, was acquired by United States Gypsum in 1928. The plaster mill was expanded soon afterward; the erection of a wall-board plant followed in 1936.

The gypsum deposit, a formation of the Jurassic age, lies generally in six layers, separated by thin seams of shale. A modified room-and-pillar method of mining is used. Mechanization has progressed from hand loading and mule tramming to the present method of trackless min-



GEORGE M. BAKER, of Lockwood, Mo., has enlisted a thrifty, hard-working Caterpillar D364 Diesel Engine to help him wage his personal battle against rising costs in rock crushing.

His fuel bills are the payoff. To produce power to crush 60 tons of rock per hour, the budget-minded 265-HP Cat* Diesel uses only 10 gallons of fuel. This tightfisted Diesel is the steady power plant for a Cedarapids 20 x 25 crusher and two conveyor belts.

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ing. A new mine was opened in August, 1951, a Joy loader and Joy shuttle cars being used to excavate and get the material out. Drilled holes are blasted with 40 percent dynamite using millisecond delay caps.

Rock as it comes from the mine seldom exceeds 18 in. in top size. Reduction is accomplished by an 18- by 30-in. jaw crusher, followed by a Jeffrey swing-hammer mill which has a capacity of about 80 t.p.h. of minus 2-in. rock. Transportation is handled by an 18-in. by 2,800-ft. Goodyear nylon-cord two-flight conveyor belt. Self-aligning idlers are placed every 100 ft. on the top side and every 250 ft. on the return side. The entire conveying system is interlocked for protection.

Iron Stain Removal Removal of iron stain and other grain coatings on glass and chemical sands by a new development, the Edwards paddle scrubber, was described in a paper by Will Mitchell, T. G. Kirkland, and R. C. Edwards of the Process Research Laboratory, Allis-Chalmers Manufacturing Company.

The scrubber used in the tests consisted of a rubber-lined steel cylinder 18 in. in diameter mounted on a slope in a frame, and containing a set of revolving, rubber paddles. During operation, the sand forces its way between the paddle faces and the surface of the cylinder, providing an abrading action as the pulp flows by gravity down the length of the cylinder. Capacity is limited by the amount and hardness of the coatings and by the quality of the product desired.

The paper described tests on impure natural sands obtained from silica-sand deposits in four widely scattered areas, Illinois, Nevada, Michigan, and Ohio. Three of the sands tested contained varying amounts of iron oxide, and the fourth an excessive amount of calcareous bonding material. The iron oxide was predominantly in the form of grain coatings. In making the tests with the Edwards scrubber, the general flow sheet included a coarse-grinding device if particle size was larger than 20-mesh, a vibrating screen, the paddle scrubber, a rake classifier operated to separate at 200-mesh, a thickener, and a filter for dewatering slimes. Finally a rotary drier was employed.

The tests indicated that the scrubber will prepare a highly acceptable glass sand from contaminated deposits. Elimination of the contaminant ranged from 48 percent in the case of the Illinois sand (which was the cleanest of all samples) to 79 percent in the case of the Nevada sand which had an original Fe_2O_3 content of 0.247 percent. In the case of the Nevada sand, efficiency of the Edwards scrubber, as compared with other standard cleaning methods, was also tabulated, with this result:

Method	% Fe_2O_3 Remaining
Edwards scrubber	0.061
Log washer	0.176
Pebble mill	0.207
Blade mill	0.182
Rod-mill (rubber-covered rods)	0.137
Classifier only	0.193

Silica Sand F. L. Morledge, Nevada Silica Sands, Inc., gave a picture story of that company's mining and milling operations in the production of silica sand used in foundries and for glass manufacture. This plant has a very complicated flow sheet as the particles have a coating which must be removed; and there is an excess of material finer than most requirements. Even more detailed methods of flotation are being studied.

Potash A symposium on potash occupied the Industrial Minerals Section, both morning and afternoon sessions, on the first day of the meeting. Attention was concentrated on the Carlsbad area, where the ore lies in a comparatively flat bed, and where all operating companies in the area are mining in the same general ore horizon. The bed varies in thickness and purity, being mined at present from a minimum of 4 ft. to a maximum of 12 ft., the grade of ore varying from 17 to 26 percent K_2O. Entry to all mines is through vertical shafts, the majority being of the conventional three-compartment rectangular type, although some circular shafts are reportedly in use. Depth of the shafts range from 725 to 1,420 ft. Various modifications of the room-and-pillar system are used, with practically no need for timbering or roof-bolting since the ore is overlain by a thick salt formation which is very strong and provides an excellent roof.

All drilling is done with auger-type coal drills, hole sizes being 1½ in. for the most part. Blasting is done with ammonium-nitrate exposives, fired electrically with millisecond delay primers, with the bottom row and lower half of the center V-holes fired first. The potash ore is tough, and heavy shooting is required to obtain good fragmentation. The average depth of a round shot is from 7½ to 9 ft. Loading from the faces is done quite generally with Joy loaders, usually to shuttle cars. The only exception is the Duval Sulphur & Potash Company, where haulage is done by belt conveyors. The Potash Company of America and International Minerals & Chemical Corporation employ 6-ton rotary dump cars, while the U. S. Potash Company uses 4-ton side-dump cars. Southwest Potash Corporation employs the largest cars, 17-ton bottom-dump units.

Preparation and presentation of the Carlsbad papers was by G. E. Atwood and D. J. Bourne (Duval Sulphur & Potash Co.), G. T. Harley and C. A. Arend (International Minerals & Chemical Corp.), and E. A. Schoeld and James Edmunds (Potash Co. of America).

The complicated evaporation process used by the American Potash & Chemical Corp. was described by M. L. Leonardi of that company. Daily, 3,000,000 gallons of brine are pumped to the evaporating plant.

Dimension Stone Another entire session was devoted to the dimension-stone industry, its production problems, and the economics of the industry. Technical papers were presented dealing with the industry in California, in southern Indiana, and in the New England states. More and more, the dimension-stone quarries are competing with the crushed-stone industry by processing by-products, it was revealed. The principal items marketed by the cut-stone producers are concrete aggregates and agricultural limestone.

Feldspar from River Sands Interest in Kansas in developing its river sands to yield both feldspar and silica sand was revealed in a paper entitled *Experimental Production of Feldspar and Silica* (Frank Bowdish and Russell Runnels, University of Kansas). In the experiments, six river and flood-plain sand samples from the vicinities of Kansas City, Wichita, Concordia, and Salina were treated by flotation methods to determine the feasibility of establishing such industries. The tests indicated good possibilities, the feldspar concentrates yielding an average of 27.1 percent, while good silica sand was processed capable of being concentrated to an Fe_2O_3 content of less than 0.03 percent. Later experiments show that grinding and magnetic separation will further reduce the iron content.

Milling Methods At the milling methods session of the Industrial Minerals Division a paper on *A Method for Concentration*

of North Carolina Spodumene Ores, prepared by Mason K. Banks, W. T. McDaniel, and P. N. Sales, was read by F. B. Shay, Foote Mineral Company, in the absence of the authors. Studies of a froth flotation process for concentration of spodumene from ores obtained in the vicinity of Kings Mountain, N. C., were made on both batch and pilot plant scales. A process was developed for the production of concentrates which assayed 6.0 percent Li_2O and 0.45 percent Fe_2O_3 with 70-75 percent recovery of spodumene. The process requires two flotation separations, i.e., (1) a procedure whereby mica, feldspar, and quartz are simultaneously removed as a froth product with a cationic collector, and (2) the subsequent removal of iron-bearing minerals as a froth product while spodumene is depressed as a tailing. The process is the reverse of the usual procedure of collecting spodumene as a froth product with anionic collectors.

The investigation was undertaken by North Carolina State College Minerals Research Laboratory of Asheville, N. C., at the request of the Foote Mineral Company of Philadelphia, Pa. Parts of the process are now being used on a commercial scale at the Foote Mineral Company plant near Kings Mountain, N. C.

Work Index Tabulation In a paper entitled *Work Indexes Tabulated*, Fred C. Bond, Allis-Chalmers Mfg. Co., Milwaukee, Wis., discussed recent research on crushing and grinding calculations. His paper included a table which gave grindability and crushability test results in terms of a work index. Some 57 different classes of materials were listed, including the following nonmetallic minerals:

Average Work Indexes

Material	Specific Gravity	Work Index
Andesite	2.84	18.25
Barite	4.50	4.73
Basalt	2.91	17.10
Cement Clinker	3.15	13.56
Cement Raw Material	2.67	10.51
Coke	1.31	15.18
Dolomite	2.74	11.27
Emery	3.48	56.70
Feldspar	2.59	10.80
Flint	2.65	26.16
Fluorspar	3.01	8.91
Gneiss	2.71	20.13
Granite	2.66	15.05
Gravel	2.66	16.06
Gypsum Rock	2.69	6.73
Limestone	2.65	12.54
Magnesite	3.06	11.13
Phosphate Rock	2.74	9.92
Potash Ore	2.40	8.05
Pyrite Ore	4.06	8.93
Quartzite	2.68	9.58
Quartz	2.65	13.57
Shale	2.63	15.87
Silica Sand	2.67	14.10
Slag	2.83	9.39
Slate	2.57	14.30
Sodium Silicate	2.10	13.50
Syenite	2.73	13.13
Trap Rock	2.87	19.32

Mr. Bond stated that since the last grindability table was published some six years ago, many new tests on materials have been made. With the development last year of his Third Theory of Comminution, it has been possible to reduce all grinding calculations to a consistent work index value. Mr. Bond pointed out that up until the present time, a total of 1,211 work index values have been calculated, which have an overall average index of 14.42.

According to Mr. Bond, the work index *Wi* is "the calculated total work input in kw.-hr. per short ton required to reduce from theoretically infinite particle size to 80 percent passing 100 microns or to approximately 67 percent passing 200 mesh". It can be expressed in the following formula:

$$Wi = W \left(\frac{\sqrt{Rr}}{\sqrt{Rr}-1}\right) \left(\sqrt{\frac{P}{100}}\right)$$

where W represents the work input in kw.-hr. per ton; F is the feed size, or diameter in microns of the square hole which 80 percent of the feed passes; P the product size, or microns which 80 percent of the product passes; and Rr the reductive ratio of F/P.

The work index can also be expressed as follows: $Wi = 2.59\ C/S$, when C represents the impact crushing strength in the ft. lb. per inch of thickness and S the specific gravity.

Mr. Bond also presented formulas for determining rod mill grindability and ball mill grindability.

For a more elaborate discussion of a crushing and grinding calculations, the reader is referred to an earlier article in PIT AND QUARRY.*

Crusher Cavities Another paper on crushing, which dealt with the design development of crushing cavities of gyratory crushers, was given by H. M. Zoerb, Nordberg Manufacturing Company, Milwaukee, Wis. Mr. Zoerb pointed out that liner wear in crushing cavities of secondary and tertiary crushers can become an appreciable cost item, especially when the material to be crushed is hard and abrasive. This item of cost not only includes the crushing members, but also such more intangible costs as labor and lost production due to more frequent replacement.

According to the speaker, a crushing cavity member, properly designed for a given operation, will have maximum utilization (70-75 percent of original weight of metal) and maximum capacity of unit during the greater portion of its life. He added that liners so designed for a given operation will show added economies in power consumption, maintenance, and general wear and tear on the crushing unit.

Mr. Zoerb then traced step by step the design developments in this field, first regarding tertiary crushers and then secondary crushers. Changes brought about included the reduction of the crushing cavity sizing zone to the minimum by removal of the lower parts of the concave and mantle, the radical changing of the concave and mantle contours, and the development of a cavity with three distinct crushing zones, each proportioned volumetrically. According to the speaker, these changes meant an approximate one-third reduction in the weight of the liner; permitted a greater range of reduction; and were less sensitive to feed characteristics insofar as it affected capacity. Another feature of the newly designed cavity was that the angle of nip was held to the desired minimum. In addition, this redesign of cavities has permitted a better choice of crusher for the duty required; prior to the new design it was necessary to recommend oversize crushing units in order to meet feed size limitations, particularly in the case of low-tonnage operations.

Mr. Zoerb mentioned that 60 crushing units have been equipped with the newly designed cavities, results being on the whole very successful. He added, however, that no one type of cavity may apply to all crushing operations, even though the reduction ratio may be approximately the same.

Rubber Lining A talk on *Rubber Coating of Material-Handling Equipment* was given by B. H. Ensign, sales engineer, The Galigher Company, Salt Lake City, Utah. The paper discussed rubber as a lining or covering material and included as much field (not laboratory or test) data as possible, although no specific problem was covered.

Information was presented relative to the use of rubber, either natural or synthetic, as a lining or covering material for such materials-handling media as pipe or tanks, thus taking advantage of two primary properties of rubber; i.e. resistance to corrosion and resistance to abrasion. Other applications, including the lining of pumps, fans, blowers, stacks, filters, valves, ion-exchange systems, and flotation machine parts were not covered.

* Bond, Fred C. — *Crushing and Grinding Calculations*, PIT AND QUARRY, November, 1952, page 118.

Besides giving general information, the paper also included valuable cost comparisons based on present-day prices of several materials, some of which can be considered equal to rubber, particularly for corrosion resistance. Mr. Ensign first considered the use of rubber in lining pipe and then in lining tanks.

According to the speaker, problems of corrosion and abrasion have plagued mine and mill operators for many years, and rubber, either natural or synthetic, has become one of the primary materials helping to solve these problems. Metallurgical pulps must be moved throughout a flowsheet, and it is often not possible to let gravity and open launders handle the job. Consequently pipe lines are required; and if the pulp is abrasive or corrosive, it is not long before a standard steel line requires replacement. Acid mine waters also are a particular source of trouble, he added. Mr. Ensign then discussed numerous installations of rubber-lined pipe, which have proved to be very successful.

The speaker reported that pipe in standard sizes from 1½-in. to 3½-in. can be readily lined in lengths up to 10 feet, whereas 4-in. pipe and larger can be lined in any length up to 21 ft. randoms. He emphasized here that in any pipe system the point of standardization of unit lengths is important; however, in a rubber-lined system it is particularly so. This permits the operator to have the minimum of replacement sections on hand which he should have because of the very nature of the installation. These sections can be installed as required with the least possible down time, and the damaged sections can be repaired in the normal course of work and made available as future replacements. Mr. Ensign also stated that all standard fittings, cast iron or steel, flanged or victaulic, can also be easily lined. However, threaded pipe or fittings cannot be satisfactorily rubber lined because of the problem of securing a proper seal at the joint during assembly.

Mr. Ensign concluded his paper by discussing rubber lined tanks. He stated that tanks are normally rubber-lined to provide protection against corrosion, although some agitator tanks have been lined because of the excess abrasive action within the tank. There is practically no limit to the size or shape of a tank acceptable for lining. This is true because of the availability of many different types of rubber compounds, each of which is created for a particular method of application.

Wet Cyclone Philip J. McGuire, Oliver-United Filters, Inc., discussed a new type of wet cyclone developed by his company two or three years ago, called the Centriclone. The unit can be used to make separations that are usually based on particle size but can also be based on particle specific gravity. It differs in certain fundamental ways from earlier type liquid cyclones.

According to Mr. McGuire, the usual design of liquid cyclone includes a tangential feed inlet into the upper part of the body, usually through an orifice that is of controlled size. This feed introduced under pressure produces the circular velocity to accomplish the desired separation. The fine particles are taken off from the center of the upper body through an overflow outlet, and coarse particles are taken from the apex of the cone that forms the lower body through an underflow outlet. The centrifugal forces that are available in this type of unit vary directly with the inlet pressure and velocity at the feed orifice and vary inversely with the radius or diameter of the cyclone body.

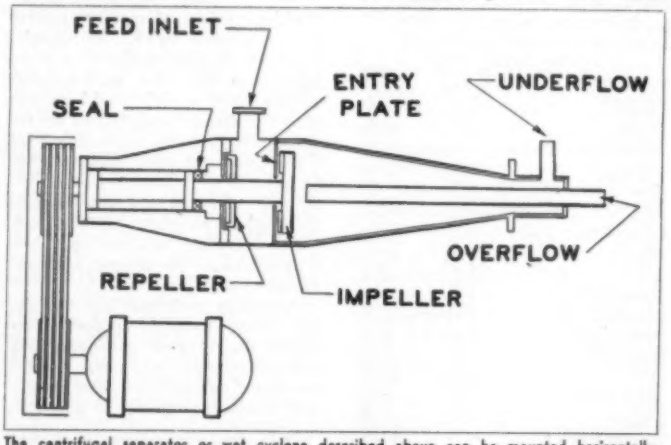
The speaker pointed out that the Centriclone, on the other hand, is designed with a feed inlet into the upper body that is not tangential and has no orifice. The feed pressure can be optional because this has no effect on the circular velocity. An annular opening from the upper body leads the feed to an impeller, which has radial vanes on the feed inlet side; this impeller produces the circular velocity to accomplish the desired separation. The fine particles are taken off from the upper center of the cone a short distance from the back or smooth side of the impeller through an outlet tube that passes through the center of the cone and emerges at the center of the cone apex connection. The coarse particles are taken off through an underflow outlet that is on the side of the cone apex connection. (See cut.)

The speaker then pointed out that the centrifugal forces that are available in the centriclone vary directly with the radius or diameter of the impeller. The diameter can be selected to give an internal volume or time of particle residence independent of other conditions. The practical operating range in use so far is close to 100 f.p.s. maximum velocity or about twice that for earlier-type liquid cyclones.

The speaker presented tabular data which showed the operating results of the Centriclone on such materials as whiting, iron flotation tailings, taconite, pulp, and sand.

Centrifugal Separation J. J. Gillis, project engineer, Bird Machine Company, South Walpole, Mass., presented a paper on *Centrifugal Separators in Mineral Dressing*. At the outset he stated that comparatively little has been said or written about the use of centrifugal separation in the field of mineral dressing as contrasted to the chemical industries.

Mr. Gillis first described two types of continuous centrifugal separating machines, screen and solid-bowl, pointing out advantages and disadvantages of each. The screen type handles the slurry in a perforate are retained against a filter media



The centrifugal separator or wet cyclone described above can be mounted horizontally, as shown here, or vertically, depending on headroom.

and are removed mechanically. The continuous solid-bowl machine, on the other hand, employs centrifugal sedimentation whereby the solids are deposited against the walls of the bowl. With this unit, the solids must have a higher specific gravity than the liquid in which they are suspended.

According to Mr. Gillis, the continuous solid-bowl centrifugal has the advantage of greater versatility as compared with the screen machine. It handles coarse or fine materials . . . as coarse as ½ in. or as fine as a micron. Since slurries may be thick or thin, there is no need for thickening apparatus ahead of the solid-bowl machine as is the case with the screen type. Low maintenance and operating cost is also a noteworthy feature of the solid bowl centrifugal. As a side note, the speaker also compared centrifugal filtration with vacuum filtration, pointing out that the former is more advantageous for most operations.

Mr. Gillis discussed specific applications of the continuous centrifugal separator in the mining industries, first considering its use for filtration (as in the potash and coal industries), and then its use in classifying solids according to particle size (as in the barite, limestone, and cement industries). He first reported on the pioneer operation at International Minerals and Chemical Corporation's potash plant in Carlsbad, N. M., pointing out that the separation process employed there is both novel and interesting in that it is one of the rare cases where froth flotation is being applied to a process involving two nearly identical soluble materials, namely sodium chloride and potassium chloride.

In discussing the use of continuous centrifugal separators for classification of solids according to particle size, Mr. Gillis stated that this type of classification produces results in the micron ranges that cannot be equalled by any other method. In particular he said it has decided advantages over ordinary gravity classification. Feed slurries that are high in solids content are readily handled.

Mr. Gillis cited the use of centrifugal classification in a Southern barite plant where the ore is concentrated in jigs, after which the concentrate, (running 80 percent barite) and tails (50 percent barite) are ground in ball mills and transferred to separate flotation circuits. In both cases continuous centrifugal classifiers are used to eliminate the minus 5 micron slimes which otherwise would greatly reduce the task of the reagent. The resulting saving in reagent cost has been approximately 40 cents per ton, the speaker stated.

Mr. Gillis described a limestone dust plant in Maryland, where the material is wet ground in ball mills and classified in a continuous centrifugal classifier to produce 100 percent minus 10 micron solids. In this operation, the fine fraction is fed to a thickener and the thickener underflow is fed to a continuous centrifugal filter for dewatering. The resulting filter cake contains 70 percent solids; it is produced at the rate of 2½ t.p.h.

The speaker also reported that a large cement firm in eastern Pennsylvania successfully employs a flotation circuit for upgrading cement rock, using two centrifugal classifiers in the circuit. Following grinding of the low-grade cement rock, the slurry is diluted to a consistency of about 35 percent solids; then through classification the coarse size is automatically upgraded, with the fine fraction going to the flotation cells. Through accurate control the units can make a particle size separation from 15 microns to 35 microns, depending upon the analysis of the rock.

Mr. Gillis said that centrifugal classifiers are also used in cement grinding circuits, to remove particles 200-mesh and coarser for regrinding.

In conjunction with Mr. Gillis' paper, G. T. Harley and H. P. Clark, resident manager and development superintendent, respectively, of the potash division of International Minerals & Chemical Corporation, Carlsbad, N. M., presented a paper on *Bird Centrifuges in the Potash Industry*. The speakers reported that during the last 12 years, the Carlsbad potash operation has gradually gone from conventional thickening and filtering methods to the use of Bird Centrifuges to accomplish the same end. Their paper was a detailed account of the history of the development of the changeover from one method to the other, with the reasons for the change.

They described the Bird solid-bowl type continuous centrifugal filter as an inclined trough containing a screw conveyor for transporting solids up the incline; the solid particles are deposited under centrifugal force several hundred times greater than gravity which is produced when the trough is rotated on an axis.

Reactivated Gold Dredge

(*From page* 67.)

L. M. Cooley, the managing partner at Edna, is responsible for the design of the conveyor installation, while C. G. Cooley runs the aggregate-producing end of the business at Denver. The latter is credited with the idea of revamping the dredge into the floating gravel plant. A similar gold dredge, also inoperative at the present time, will probably likewise be converted to sand-and-gravel service in the near future, Mr. Cooley reports.

E. J. Wemlinger is plant superintendent of the Denver operations of the Cooley Gravel Co. Morgan R. Williams is the superintendent at Boulder. H. Orville Enderud is chief engineer for both plants. Back at the original Cooley aggregates plant in Chillicothe, Mo., F. M. Graham, vice-president, serves as general manager.

Clay Production and Uses Show 10 Percent Increase

Total clay production increased 10 percent in 1951—from 39,381,446 tons in 1950 to 43,415,779 tons in 1951—according to reports of producers to the U. S. Bureau of Mines.

Most users of clay registered increases. Decreases in 1951 from 1950 were shown by the following: high-grade tile, 13 percent; rubber, 15 percent; chemicals, 8 percent; filler other than paper or paint, 5 percent; plaster and plaster products, 31 percent.

Sales of both kaolin and ball clay in 1951 reached new highs in tonnage and value. Each showed an increase of 6 percent over the tonnage reported for 1950. The kaolin use pattern remained essentially the same as for the past several years. Bentonite producers in 1951 enjoyed even a better year than the former banner year of 1950. Output increased 25 percent in tonnage and 52 percent in value over 1950. Production of fuller's earth in 1951 established an all time high.

Economical Locomotive Made From Old Steam Engine

Four wheels and the frame of an obsolete 1923 steam engine and an International UD-24 diesel power plant are the main components of a company-designed and constructed locomotive now operating at the Lehigh Stone Company quarry, Kankakee, Ill.

The UD-24 was mounted on the front portion of the frame, and power to drive the wheels was provided through a Twin Disc Torque Converter to a Davenport-Bessler transmission reduction gear. The air supply is furnished by a Quincy 34-cu. ft. compressor attached to the left side of the locomotive and powered from the front pulleys on the UD-24 diesel.

Pulling 10 cars totaling 150 tons (75 tons of stone—75 tons of dead weight), it takes the engine 26 minutes to make the 1¼-mile round trip between quarry and crusher. Most of this time is taken up in the individual loading of each car.

Dravo Builds Floating Plant for Heavy Media Separation of Gravel

By W. L. PRICE
Engineering Manager
Keystone Division
Dravo Corporation

A side view of the heavy-media separation plant. The dredge proper is shown on the left, with the plant (right) lashed to the hull.

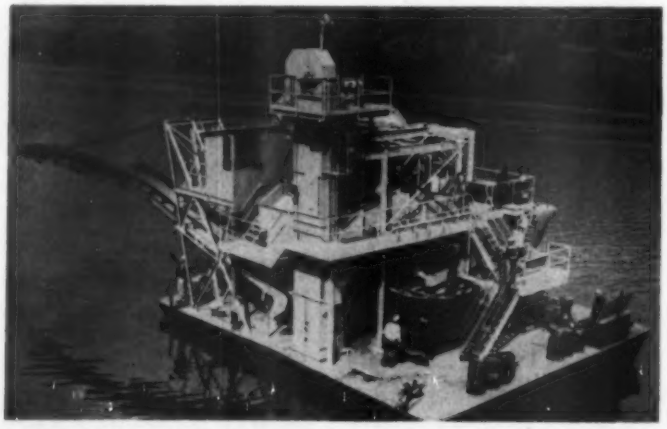
FOR several years, Dravo Corporation has been active in research for methods to improve the quality of river gravel for use as aggregate for concrete. Objectionable particles of "soft" gravel, porous gravel, and foreign materials, such as coal, wood, and clay were constant detriments to this desired high quality aggregate. "Soft" gravel similar to loosely bound sandstone caused a high loss in the Los Angeles rattler test[1] (an abrasion and impact test) and broke up in the sodium sulfate soundness test.[2] Mechanical means of "scrubbing" or pulverizing these particles in rotating cages with and without ball charges had been tried for years with high maintenance cost and only partial success. It became imperative to develop a new process for removal of these objectionable particles of gravel.

After learning of the success of the Royal Canadian Air Force[3] in removing shale particles from their gravel by means of the differences in specific gravity[4] (shale sp. gr. 2.0, gravel sp. gr. 2.4 to 2.9), a preliminary study was made of samples of the Dravo gravel deposit by sorting out individual particles by specific gravity (see Fig. 1). This study indicated, first, that there was a variation in specific gravity of the deposit and, secondly, that in general the softer or more undesirable gravel lay in a lower range of specific gravity than did the harder material. With this encouragement, a sample of forty (40) tons was sent to the American Cyanamid Company for a run through their laboratory heavy-media separation plant.

It might be well to define heavy-media separation at this point. The process consists of placing the feed material to be separated into an artificial heavy liquid made up of finely ground material kept in suspension in water by constant agitation. In most cases, either magnetite (Fe_2O_3) or ferrosilicon (FeSi) is used in various gradations to suit the separation.[5] For example, if finely ground magnetite (sp. gr. 4.9) is kept suspended in water (sp. gr. 1.0) in the ratio 75 percent to 35 percent by weight, a fluid of 2.5 specific gravity will result which will float off all lighter substances. It can be seen that by varying these percentages of magnetite and water, a mixture of any specific gravity between 1.0 and about 2.5 to 2.6 can be produced. For liquids with higher specific gravities, ferrosilicon (sp. gr. approx. 7.0) can be used. Once the feed is separated into a float and a sink product, the magnetite is removed by drainage and washing, re-

[1] Los Angeles Rattler Test—A.S.T.M. C-131.
[2] Sodium sulphate test simulates a freezing and thawing action—A.S.T.M. C-88-46T.
[3] Mining process applied to runway construction by S/L C. V. Trites, M.E.I.C., and S/L J. D. Shannon, Air Material Command, Royal Canadian Air Force, 1949.
[4] Specific gravity is defined basically as the weight of a given volume of the material divided by the weight of an equal volume of water. — (A.S.T.M. E-12-27 and Test Method A.S.T.M. C-127-42).

[5] Typical cumulative sieve analysis of ground magnetite: 38 mesh—5-8 percent; 100 mesh—15 percent; 125 mesh—70-75 percent.



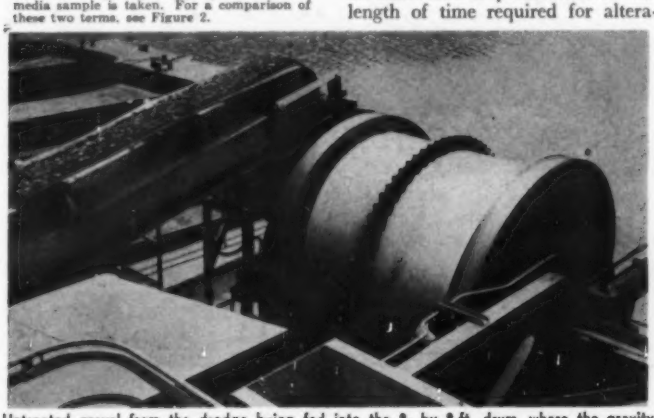
The heavy-media separation plant, mounted on its own barge, before being connected with the dredge.

covered magnetically, and re-used. This must be done by screening, and the finished product, sink or float, can be loaded at this point. This briefly is the essence of heavy-media separation and the process is used to separate various products, such as slate from coal, gangue from iron ore, and to make many other useful separations.

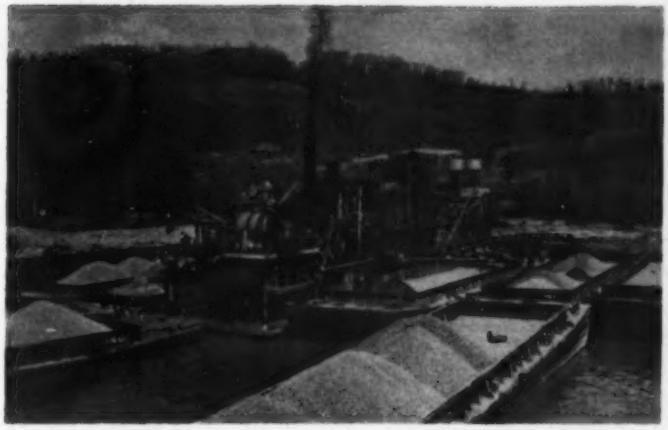
At the American Cyanamid Company laboratory the gravel sample was separated at operating specific gravities ranging from 2.30 to 2.50.[6] Figure 2 indicated the percentage of sink and float at these gravities. Examination of the float product showed again that the objectionable soft particles predominated in the range of low specific gravities. Los Angeles rattler tests run on these samples gave results as indicated in Figure 3. Here it will be noted that by increasing the specific gravity, it is possible to improve the feed from a 38 percent loss to a 28 percent loss, considerably below the allowed 35 percent. The high rattler loss on the float product indicates the soft quality of the gravel removed.

Improvement of the gravel as determined by the sodium sulphate test is graphically illustrated in Figure 4. Note the improvement by reduction of the loss as the specific gravity of separation is increased, running well below the allowable 10 percent. The high loss on the float gravel again is an indication of the inferior quality of the gravel removed from the loaded product. One other indication of improvement is shown in Figure 5, which shows a reduction in percent of absorption of the sink product as the specific gravity increases.

[6] It should be noted that operating specific gravity must be distinguished from true specific gravity. True specific gravity can be determined by use of a heavy liquid (see distribution curve Figure 1) while operating specific gravity is a test figure obtained by weighing a measured sample of the media. This will vary, depending upon where the media sample is taken. For a comparison of these two terms, see Figure 2.



Untreated gravel from the dredge being fed into the 8- by 8-ft. drum, where the gravity separation takes place.



End view of the heavy-media separation plant. Note the loading conveyors placing finished gravel in barges alongside.

Design of Plant The results of these tests provided the only data of its kind on gravel. It proved encouraging enough to study further the construction of a heavy-media separation plant. At present, the gravel is dredged from the Ohio River, screened, and the finished products loaded into barges. A land plant layout was discarded due to the market location which favored a unit at the dredge with greater flexibility and no lost time and expense on double handling of material to and from the plant. Serious consideration was given to remodeling the existing Dredge No. 9 to include the heavy-media process within the existing flow scheme. However, this idea was abandoned for several reasons; namely, the dredge could not be taken out of production for the length of time required for alterations. Secondly, being a new application of the heavy-media process, no operating data was available, and much experimental work was needed which would slow down necessary regular production of gravel.

It was decided, therefore, to use a separate floating heavy-media plant lashed to the dredge and fed by conveyors. There were numerous difficulties involved. One was to get all the necessary equipment on a small hull in the proper location in the flow scheme. The other was the question of the stability of a small floating hull and its possible effect on the process. These and other serious problems were resolved, and the first floating heavy-media separation plant was then designed and built by the Engineering Works Division of Dravo Corporation.

Plant Specifications The equipment and structure were mounted on a specially designed hull—50 ft. wide, 40 ft. long, and 7 ft. 6 in. deep. The hull is subdivided into fourteen (14) water-tight compartments around the perimeter, so that any one compartment could be flooded without sinking the plant. The plant is fed by a 100-ft. long, 24-in. wide conveyor belt extending from the former loading point on the dredge to the feed hopper at the top of the new plant. The finished gravel product is loaded onto two 500-ton capacity barges moored alongside. The waste product can either be wasted back into the river or dumped onto a conveyor belt leading back to the crusher on the dredge for crushing to sand, the latter being an experimental feature. The general layout permits loading practically any com-

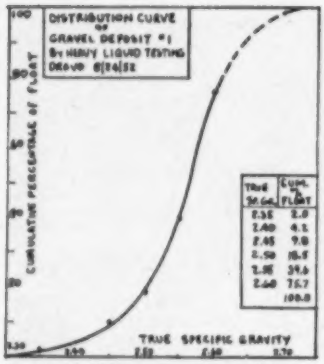


Fig. 1. Distribution curve of gravel deposit No. 1. These data were obtained by placing the gravel sample in an artificial heavy liquid and measuring the amount of float at each different specific gravity.

bination of barges from the dredge and heavy-media plant with quick change-overs from one to the other.

The feed to the plant is ordinarily either or both of these sizes of gravel, 2½- by 1-in. and 1¼- by ⅜-in., depending on the production requirements. The plant is designed to handle a maximum of 225 t.p.h., with an average feed of about 150 to 175 t.p.h.

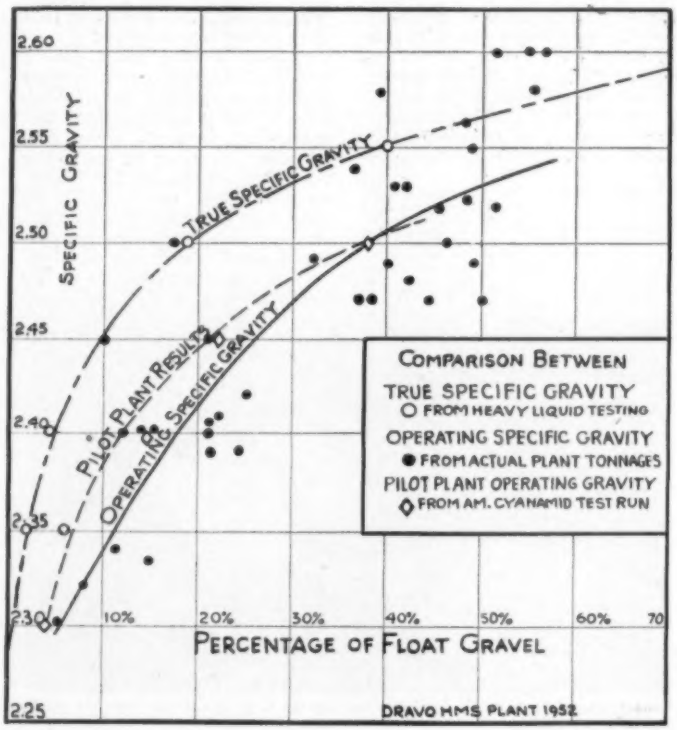
The flow of gravel through the plant can be observed in the accompanying isometric flow sheet. The feed is supplied by the aforementioned 24-in. conveyor belt. This discharges into an 8- by 8-ft. Wemco drum separator revolving at about 2 r.p.m. The drum is filled one-third full of the heavy media pumped by a 6-in. Wemco glandless pump. On entering the media, the light particles of gravel float on the surface of the liquid and out the end of the drum onto a chute, and then to the 3- by 16-ft. two-deck float screen. Meanwhile, the heavier particles sink to the bottom of the drum and are bailed out by lifters on the drum periphery. This sink product is dumped onto a collecting pan and flumed to the 6- by 16-ft. sink screen.

The setup is similar on both screens. The first portion of the screen has no sprays and about 95 percent of the media drains from the gravel here, drops through the screen into the media collecting sump and back into the main 6-in. pump where it is sent back to the drum to repeat the cycle. The small amount of media that clings to the gravel is washed off by fine water sprays supplied by a 500 g.p.m. pump. This diluted media washes through the screen and flows to two 48-in. Wemco belt-type magnetic separators in series, where the magnetite is recovered magnetically and the water is wasted overboard. The recovered magnetite is then pumped by the 3-in. Wemco media return pump to the 48-in. by 29-ft. Wemco 11-in. densifier, where it is dewatered to the desired percentage of moisture and dumped back into the circuit at the sump. This completes the media circuit.

The gravel is carried across the screens, with the float gravel either dropping into a waste well or being returned to the dredge for crushing to sand. The sink gravel is separated and blended back in proper proportions, and two different sizes are chuted onto the 24-in. loading belts to the barges.

Plant Performance The plant was put in operation in April of 1952 and started production in May, operating through the 1952 season. In this short period of operation it is impossible to fully evaluate the improvement of the gravel, but the plant has lived up to expectations thus far. Rattler tests have been improved sufficiently to enable the plant to supply aggregate for which a 35 percent rattler loss is permitted. The results of the sodium sulphate soundness test indicate a very comfortable margin of safety. In general appearance the gravel has improved termendously, and all foreign material is removed. One added feature of the plant is that it will permit dredging for gravel in contaminated areas previously rated unusable. This applies particularly to streaks of granulated coal found in the deposit as well as other deleterious material. In a deposit in which the gravel needs no real improvement, but is contaminated with coal, the operating gravity may be lowered to 2.10 to 2.20 for removing coal and wood only. Further tests on processed gravel are being run to make available more complete data on this process.

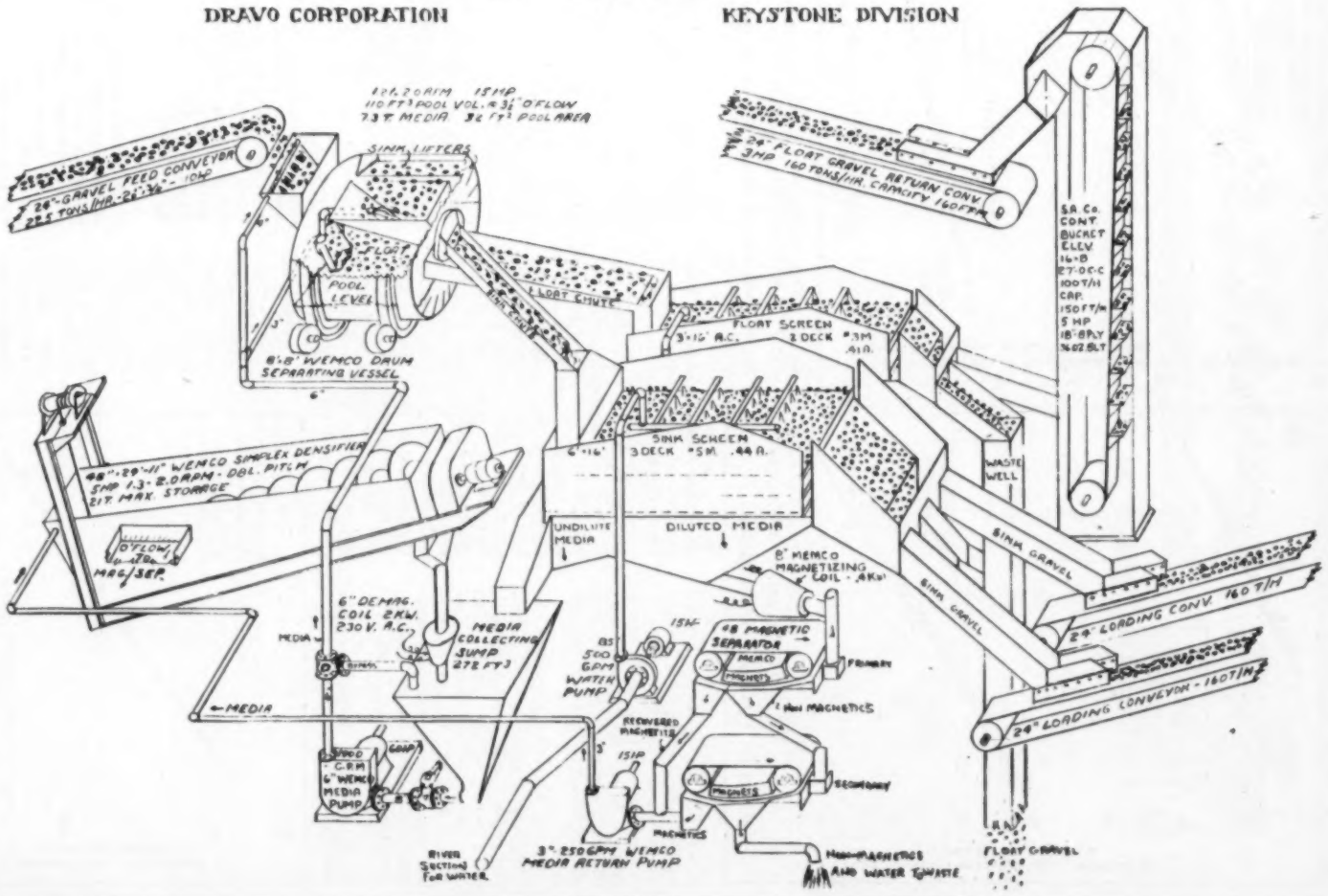
Fig. 2. Percentage of float vs. specific gravity.



Plant Operation The plant is designed for one-man operation. The operator's only fixed duties while operating consist of checking specific gravity of the media and making the necessary adjustments. The gravity is checked by weighing a measured sample of media on a beam balance which reads specific gravity directly. The remainder of the operator's time is spent in lubrication and mainte-

HEAVY MEDIA SEPARATION PLANT FOR GRAVEL

DRAVO CORPORATION — KEYSTONE DIVISION


101.2 DRUM 15 HP
110 FT³ POOL VOL. @ 3½" O'FLOW
73 T MEDIA 36 FT² POOL AREA
SINK LIFTERS
26"-GRAVEL FEED CONVEYOR
225 TONS/HR-26'-3½"-10HP
POOL LEVEL
FLOAT CHUTE
8'-8" WEMCO DRUM SEPARATING VESSEL
FLOAT SCREEN 3'-10" A.C. 2 DECK 3M .41A.
24" FLOAT GRAVEL RETURN CONV. 3HP 160 TONS/HR. CAPACITY 160 FT/M
S.A. Co. CONT BUCKET ELEV. 14×8 ET-DC-C 100T/H CAP. 150FT/M 5 HP 18" 8PLY 3402 BLT
48"-29'-11" WEMCO SIMPLEX DENSIFIER SHP 1.3-2.0RPM-DBL. PITCH EST. MAX. STORAGE
O'FLOW MAG/SEP.
SINK SCREEN 3 DECK 5M .44 A.
WASTE WELL
UNDILUTE MEDIA
DILUTED MEDIA
8" WEMCO MAGNETIZING COIL - AKW
SINK GRAVEL
SINK GRAVEL
24" LOADING CONV. 160 T/H
24" LOADING CONVEYOR - 160T/HR
6" DEMAG. COIL 2KW. 230 V. A.C.
MEDIA
MEDIA COLLECTING SUMP 272 FT³
15HP
83 500 GPM WATER PUMP
48 MAGNETIC SEPARATOR
WEMCO
MAGNETS
PRIMARY
SECONDARY
RECOVERED MAGNETITE
MEDIA
STAND BY C.P.M. 6" WEMCO MEDIA PUMP
GRIP
RIVER SECTION FOR WATER
3" 250 GPM WEMCO MEDIA RETURN PUMP
NON-MAGNETICS AND WATER TO WASTE
FLOAT GRAVEL

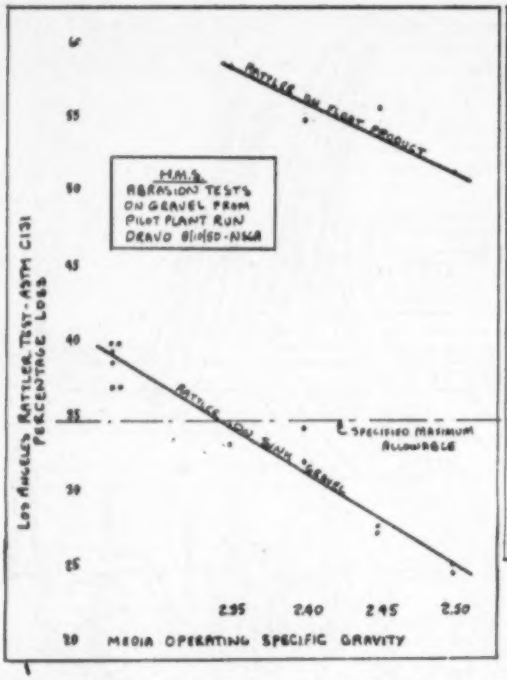


Fig. 3. (Left) Abrasion tests on heavy-media separation gravel.

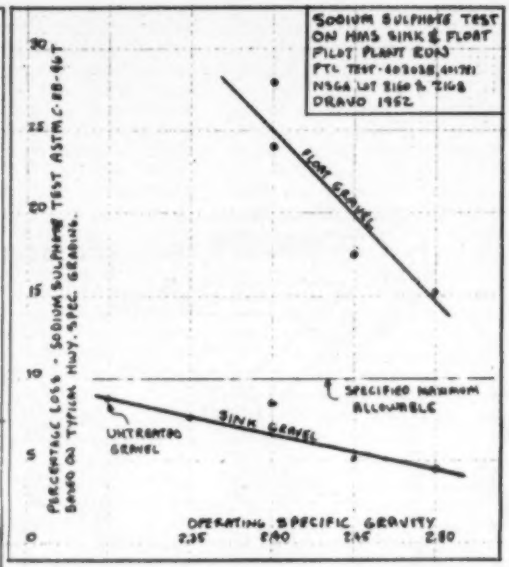


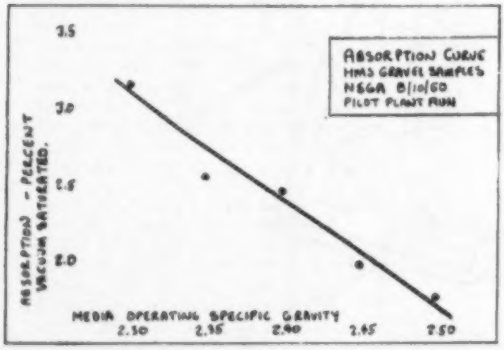
Fig. 4. Sodium sulphate test on heavy-media separation gravel. This simulates freezing and thawing action.

nance. The total power requirement for the plant is about 90 to 100 kw. including conveyors.

The estimated magnetite loss is about 1 lb. per ton of gravel feed. Ground magnetite is available at a cost of about $40.00 per ton delivered.

Repairs have been minor thus far. Media piping suffer from some abrasion which is most pronounced at elbows, turns, and other places which cause turbulence. A recent development in the field is the use of rubber hose for pipe bends. All piping bends should be designed for the minimum of turbulence and sharp bends. The only other major maintenance item has been occasional replacement of screen plates.

Fig. 5. Absorption curve—heavy-media separation samples.



Summary At this early date, the heavy-media separation plant gives every promise of proving to be a major improvement in the production of high quality gravel. Due to the specific operating requirements, the plant described would be more costly to erect than a land plant counterpart. After sufficient operating data is accumulated, it will probably be possible to integrate this equipment more directly into the flow scheme of gravel processing, with the media-recovery screens serving as the final gradation screens. At this stage, however, the plant is adequately serving its purpose as a pilot plant.

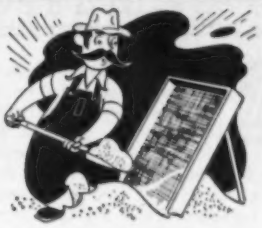
Much additional experimentation is necessary. Although the process has proved of value in this particular deposit, gravel producers should investigate carefully the analysis of their particular deposits and check them experimentally before investing in a plant of this type.

The entire project, since it is the forerunner in the gravel industry, will offer much in the way of working data on the process for this particular application. In the future, with the average gravel producer being forced to work less desirable gravel deposits, this process could prove to be the only practical way to produce sound aggregate from these poorer deposits. In any event, its contribution to practical research is a sizable one.

A crushed stone plant constructed near Bridgeport, Tex., by the Fort Worth Sand and Gravel Company has a capacity of more than 200 cu. yd. per hour. It will supply such products as concrete and asphalt aggregates, flux stone, and agstone. Located on 300 acres of stone deposit, the plant is expected to cost about $500,000.

The abrasive industry continued its upward trend during 1951, and record productions were reported in quartz, ground sand and sandstone, pumice and pumicite, garnet, emery, silicon carbide, and metallic abrasives. 1,922,669 short tons of natural abrasives were produced, valued at $14,077,118.

Screenings



by William M. Avery

WHEN this department was launched half a dozen years ago some concern was felt that there might be periods when no amount of search, research, or inventiveness could wring a full page of mild whimsey out of the normally somber affairs of the nonmetallic minerals industries. This very problem was discussed in the first issue of Screenings, and we said, probably more to reassure ourselves than because we actually had any such confidence, that we felt "reasonably sure that a fascinatingly mad world will furnish each day enough material to run this small department for a century or two."

We haven't kept any statistics on the subject, but it's a cinch that to date we've tossed away far more material than we've been able to use,

and we have a distinct impression that the ratio of tailings to product increases at a fairly steady rate. The batch of clippings on our desk for the current issue, for example, would indicate that an acute form of spring madness had become epidemic among pit-and-quarryites, although most of the incidents chronicled took place in January and February. Here are a few random samples:

At Charlotte, North Carolina, a man accused of stealing a 52,000-lb. rock crusher was indicted for petty larceny.

At Compton, California, police, having received a report that an automobile had been driven into an underground concrete storm drain, followed tire tracks for ten miles until the trail suddenly vanished where the conduit became too narrow for further travel.

Upon arriving at their first three-alarm fire of 1953, firemen of Saginaw, Michigan, were jolted by the discovery that the burning structure was the J. W. Willman Asbestos Co. Yes, it burned right down to the ground.

Near Knoxville, Tennessee, a deputy sheriff who risked his neck climbing down a 125-ft. ladder to serve divorce papers on a quarry worker, reached his goal only to learn that the man's wife had changed her mind and no longer wanted a divorce.

A monument dealer in Tokyo landed in the clink, accused of stealing 200 stones from cemeteries, re-engraving them, and selling them to new customers.

We'd be the last person on earth to suggest that there is anything even the least bit hilarious about the events covered in the foregoing items. Each, however, is capable of evoking something akin to a twinkle because we can so easily identify ourselves with the several victims of "outrageous fortune". We're frequently just as baffled as those policemen down in the storm drain, and our best efforts in the line of duty more often than not leave us just as frustrated as that sheriff who tried to serve divorce papers at the bottom of a quarry, or those firemen who couldn't even subdue a fire in an asbestos factory. Perversely, too, we can find at least a grain of sense in the apparent economic theories of the Japanese monument dealer, and we have a lively sympathy for the crusher thief's humiliation on being charged with petty larceny. In their failures all these little people have somehow acquired stature, and each emerges from misfortune stoutly clutching at least a fragment of that rare fabric in which heroes are cloaked.

Strictly Superheated

STUDENTS attending a short course to learn modern techniques of metal joining with "low temperature alloys" have selected the pneumatic young lady pictured

here as the girl they would like most to weld with. Beats us how they can expect to learn anything about low temperatures with her hanging around in *that* get-up.

Cookery

A STAFF writer of the Dallas *Times-Herald*, in a recent feature article concerning the manufacture of portland cement, teed off with this sparkling bit of prose: "Turning out high-grade cement is something like baking a cake, only with a dragline, boiler, and gristmill in your kitchen."

Yessir, we'll never forget those wonderful cakes Mom used to turn out with that little old 300-ft. coal-fired rotary kiln in our kitchen back home!

Legal Twist

POLICE in Montreal arrested a citizen the other day after they found dynamite, detonating caps, and margarine in his car. Seems there's a local law which prohibits the possession of—you guessed it—margarine!

WASHINGTON NEWS LETTER

By S. HERBERT UNTERBERGER

EVER since direct controls, first on prices and then on wages, were established early in World War II, there has been a group of economists and businessmen who believed that there was a better way for preventing inflation. They felt that direct controls were cumbersome, expensive, and only partially effective, and that the large bureaucracy which they required for their administration threatened the very existence of democratic capitalism.

In concept, their solution was very simple. Inflation results from increasing the volume of purchasing power without increasing the volume of goods available for purchase by at least the same proportion, they reasoned. Accordingly, the things to do to prevent inflation are as follows:

(1) Balance the budget, that is, make sure that taxes are sufficient to pay for the total expenditures of the government, including the expenditure on war materiel. Thus, the government would be withdrawing from consumer purchasing power an amount equivalent to what it is withdrawing from the goods available for purchase, and the imbalance which creates inflation would be avoided.

(2) Adjust interest rates so as to prevent an undesired increase in purchasing power because of the expansion of bank credit. Since our banks can create purchasing power merely by extending loans, the way to prevent them from going too far would be to raise interest rates to the point where the loan would be unprofitable to the bank or to the borrower.

Indeed, some economists felt that if they were only permitted to manipulate the interest rates, they could prevent inflation—and even, perhaps, deflation. On the basis of reasoning which is hard to understand, they argued that when the government used direct controls to secure a desired result, they were guilty of socialistic economic planning; but if the government manipulated the interest rate to secure approximately the same result, democracy was saved.

Throughout the Democratic administration, the anti-direct controllers were given practically no opportunity to demonstrate the validity of their contentions. This was not entirely because they were regarded as wrong, but rather because the actions they proposed were never expedient.

Thus, raising taxes during the war to the point where we would have been on a pay-as-you-go basis, would have required tax rates so high as to be intolerably burdensome. Large numbers of citizens whose incomes did not rise especially because of the war would have been hurt seriously and their burden would have been out of proportion. And after the war the emphasis was entirely on reducing taxes. No politician who went contrary to this trend could have survived long.

Since government borrowing was required, every effort was made to keep interest rates on government loans down, so as to keep the burden of servicing the debt as low as possible. The interest rate on government bonds is such a dominating force that it essentially established low interest rates everywhere. The administration was not especially unhappy about this since low interest rates encouraged not only the housing boom but all kinds of expansionary activities. A significant part of the post-war prosperity can be traced to this encouraged expansion, even though the accompanying inflation made some of that prosperity illusory.

One of the most significant accomplishments of the Republican administration so far has been a complete reversal of this line of thinking. One of its earliest actions was to eliminate direct controls. It appears to be convinced that the volume of goods available for purchase is no longer seriously out of balance with the volume of purchasing power. At this writing, at least, this analysis appears to have been correct. No upsurge of prices has followed the abandonment of wage and price controls.

In addition, the Administration has adopted the program of the contrary-minded. It has unequivocally announced an intention to balance the budget. To accomplish this objective, it appears to be willing to stand up against an almost irresistible pressure to reduce taxes. To be sure, it has been discovered that there is some difference between announcing an intention and accomplishing a result. The easy assumption that sheer administrative efficiency and the elimination of overlapping or duplicating jobs and functions will balance the budget has already been found to be false. To balance the budget will require some difficult fundamental decisions such as further stretching out the preparedness program or reducing economic and military help to our allies. Nevertheless, the determination is there, and even if the accomplishment is not complete, a further approach to a balanced budget will have the same general anti-inflationary effect.

The new administration has been far more successful on the other half of its program, namely, raising interest rates. Here there were no obstacles in its way to taking direct action, and the opportunity presented itself almost immediately. On January 15, just a few days after the new administration took office, the announcement was made that Federal Reserve Bank discount rate would rise from 1¾ percent to 2 percent. This is an increase of 14 percent on the rates which commercial banks have to pay to borrow money. It is likely that this will be reflected shortly in the rates which they charge their borrowers. This has happened almost every other time the discount rate has changed.

On January 29 the Treasury announced that when $8,900,000,000 worth of one-year certificates of indebtedness paying a 1⅞ percent interest rate came due on February 15, they were prepared to exchange them for either (1) new one-year certificates of indebtedness paying 2¼ percent interest, or (2) new five year-ten month bonds paying 2½ percent interest. On the identical item, one-year certificates of indebtedness, they raised the interest rate by 24 percent. The owners of most of the maturing certificates took advantage of the offer: $8,100,000,000 worth of the old one-year certificates was exchanged for new one-year certificates, and $620,000,000 worth were exchanged for the longer term bonds.

Later this year another $5,000,000,000 worth of the same 1⅞ percent one-year certificates will ma-

(Continued on page 84.)

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When to Write Off Accounts Receivable

By HAROLD J. ASHE

PROBABLY a good many businessmen err in continuing to carry certain accounts receivable on their books as assets long after these have become uncollectible. In so doing they are practicing a form of self-delusion. Moreover, they are overlooking the income tax implications of writing off such losses.

As time goes on, a taxpayer may acquire more and more such dubious assets which artificially inflate his net worth, or at least mislead him into believing his net worth is far greater than it is. If these aging accounts are allowed to accumulate and increase in total, year after year, the time must come when such so-called assets will be large in relation to other assets, and will sharply distort net worth.

Without relaxing a determination to collect such accounts, a taxpayer should nevertheless take a realistic view of accounts receivable which are degenerating into uncollectible accounts. At some point, these accounts should be removed from accounts receivable and be transferred to profit-and-loss accounts.

As the year draws to a close, accounts which appear to be uncollectible should receive final collection efforts. The reason for this is to demonstrate before year-end whether or not such accounts are, in fact, uncollectible. If they are uncollectible, they may be written off as bad debts and may materially reduce the income tax — assuming, of course, that the taxpayer uses the accrual method of accounting. That is, the bad debts must have been reported previously as income. Therefore, failure to collect represents a loss.

A final exhaustive effort to collect certain delinquent accounts is important from an income tax standpoint. This is for the purpose of establishing proof of the worthlessness of such debts as a condition of writing them off as bad debts. In this connection, it is important to keep in mind that bad debts must be deducted in the year in which it is demonstrated they are uncollectible. Thus, if a certain debt does not become uncollectible until 1952, as determined by efforts to effect collection, it could not have been properly deducted in 1951; neither can it be carried along until 1953. It must be written off in 1952, and must be taken as a deduction in the 1952 income tax return.

In some instances court action may be necessary as a step toward proving or disproving that a certain debt is uncollectible. However, this is not always required. If it can be shown that a legal judgment would be futile, if obtained, the creditor is not obliged to go to this expense to justify classifying a certain debt as uncollectible. On the other hand, if no real effort has been made to collect a debt, such an income tax deduction may become suspect.

Occasionally an account may be written off as uncollectible and deducted in the income tax return as a bad debt only to be collected in a later year. This can happen no matter how sound the judgment in determining that an account is uncollectible. In such an event, the collected account must be reflected in the income tax return for the year in which the account is collected.

Washington News Letter

(*From page* 82)

ture, and they will have to be refunded at the same higher rates. In addition, some $20,000,000,000 worth of ten-year 2 and 2⅛ percent securities issued during the war will also mature. It is being freely predicted that they will be refunded at rates no lower than 3 or 3¼ percent.

With more attractive rates being offered on risk-free government bonds, investors will certainly require even higher rates to be induced to put their money into even moderately risky business financing. Also, such higher interest rates put a damper on business expansion since a greater return is required to make expansion pay.

What has happened so far is that direct controls have been abandoned on the ground that there is no longer any real inflationary danger. Nevertheless, although there is no danger, other remedies which have long been recommended are being applied. Many politicians and some businessmen are beginning to ask whether the measures are not too drastic.

Blasting Methods Research Described at Symposium

Recent research in blasting by the U.S. Bureau of Mines, Department of the Interior, was reviewed at Duluth, Minn., before the Fourteenth Annual Mining Symposium sponsored by the University of Minnesota's Center for Continuation Study on January 13 and 14.

The speaker, Fred D. Wright, Bureau mining engineer with the Eastern Experiment Station, College Park, Md., pointed out that the Bureau concentrates its research generally on the theoretical aspects of blasting and on solving problems common to the whole industry. In recent years, the Bureau has conducted research in blasting at Pittsburgh, Pa.; College Park, Md.; Mt. Weather, Va.; and at Rifle, Colo., Mr. Wright stated.

At College Park, Md., the Bureau's Applied Physics Branch has done considerable work in studying the strain waves that are propagated in rock by a blast and the resulting damage or breakage, Mr. Wright said. In conjunction with the Army Corps of Engineers' program of building dams, Bureau scientists have been measuring the vibrations resulting from blasting near concrete structures in order to determine the maximum charges that can be detonated safely within a given distance.

The principal benefit resulting from this work for the mining industry has been the development of gauges and recording equipment that can accurately measure the velocity, acceleration, and magnitude of strain waves in rock and that can also measure time of cracking, Mr. Wright revealed. This equipment will be of great value in studying the fundamental principles of blasting.

Mr. Wright stated that at the Bureau's experimental hard rock mine at Mt. Weather, Va., the Mining Research Branch has been studying the gases and dusts produced by military and other types of explosives under different conditions, the effects of various types of stemming, and the use of millisecond-delay detonators in raise or drift rounds. This last investigation has probably caused more discussion than any other because rounds without cut holes have been developed that actually break bottom, he said.

Possibly the most interesting of the investigations at Rifle were those on millisecond-delay blasting, Mr. Wright noted. There is ample evidence to support the view that better fragmentation results when bench rounds are detonated by millisecond delays than by either instantaneous or standard delays, he said.

New England Lime Company net sales for 1952 amounted to $1,676,909, and estimated profits were $165,236 (a decline of 6.83 percent from 1951) or $2.37 per share. In 1951 earnings amounted to $2.78 per share. Officials stated that the figures for 1952 were tentative.

Installation and Maintenance of Anti-Friction Bearings

Part II

By JOSEPH BRUSCA
Senior Division Engineer
SKF Industries

DO AND DON'TS FOR BEARINGS

Don't Be Unfair To Bearings

Don't work in dirty surroundings.

Don't use wooden mallets or work on rough or dirty bench tops.

Don't use dirty, brittle or chipped tools.

Don't handle bearings with dirty, moist hands.

Don't spin uncleaned bearings.

Don't spin *any* bearings with compressed air.

Don't use same container for cleaning and final rinsing of bearings.

Don't use cotton waste or dirty cloths to wipe bearings.

Don't expose bearings to moisture or dirt at any time.

Don't scratch or nick bearing surfaces.

Don't remove grease or oil from *new* bearings.

Don't use incorrect kind or amount of lubricant.

Do Give Bearings A "Break"

Work with clean tools, in clean surroundings.

Remove all outside dirt from housing before exposing bearings.

Handle with clean, dry hands.

Treat a used bearing as carefully as a new one.

Use clean solvents and flushing oils.

Lay bearings out on clean paper.

Protect disassembled bearings from dirt and moisture.

Use clean, lint-free rags if bearings are wiped.

Keep bearings wrapped in oilproof paper when not in use.

Clean inside of housing before replacing bearings.

Install new bearings as removed from packages, without washing.

Keep bearing lubricants clean when applying and cover containers when not in use.

Proper care begins in the *stock room*. Store bearings in original unopened packages, in a dry place. The bearing number is plainly shown on the wrapping. Before packaging, the manufacturer protected the bearing

Fig. 1. Store bearings unopened.

with a grease coating. An unopened package means continued protection. Do not open carton until ready to use.

Open package only when ready to install bearing. Handle bearing with clean, dry hands and with clean rags.

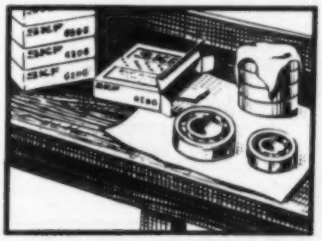

Fig. 2. Keep bearings away from dirt.

Lay bearing on clean paper and keep covered. Never expose bearing on a dirty bench or floor. Never use a bearing as a gauge to check either the housing bore or the shaft fit.

Don't wash a new bearing—it is already clean and the slushing oil

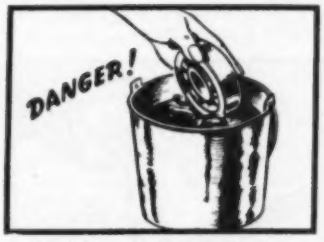

Fig. 3. Do not clean new bearings.

should not be removed. Old grease can be washed from a *used* bearing with gasoline or kerosene but fluid and container must be clean. After this cleaning, wash it out thoroughly with light oil and then relubricate. Bearings should be washed *only when necessary.*

Before mounting, be sure shaft size is within the specified tolerances recommended for the bearing. The bearing seat should be perfectly round and not tapered. It should be clean and free from nicks and burrs.

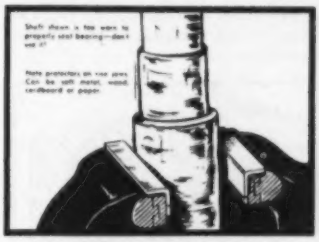

Fig. 4. Check shaft for tolerances.

Support shaft firmly in a clean place —if in a vise, protect it from vise jaws.

To press bearing on shaft, fit a clean pipe over the shaft and rest it on inner race. Before pressure is applied to bearing, apply a coat of light oil or micronized graphite to the bearing seat, the shaft and the bearing bore. This will facilitate as-

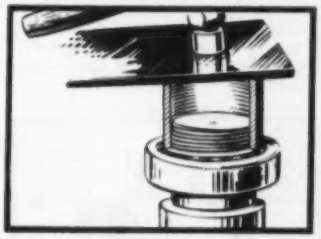

Fig. 5. Use pipe to drive bearing on shaft.

sembly. Be sure bearing is square on shaft, then apply pressure by tapping end of pipe with hammer or using Arbor Press.

To *shrink* bearing on shaft, expand bearing by:

1. Placing in clean oil, heated to maximum of 200°, for about fifteen minutes. Be sure to place supports under bearing to isolate it from bottom of container as contact will overheat bearing.

2. Heat in a clean temperature-

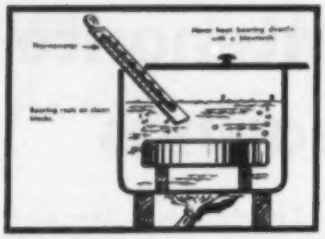

Fig. 6. Heat bearings in oil for shrink fit.

controlled electric oven or on a hot plate to a maximum of 200° for about fifteen minutes. Thoroughly heat bearing but do not overheat. This will prevent seizing on the cold shaft. After bearing is in place against shaft shoulder, lock it immediately with a lock nut. Otherwise, in shrinking, bearing may move away from its proper position against shaft shoulder.

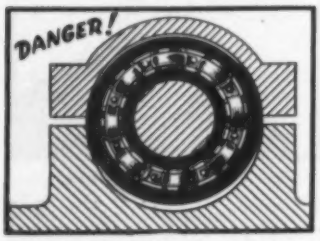

Fig. 7. Be sure split housings are right size.

When mounting in a split housing, check bore of housing to see that it is within specified tolerances and is perfectly round. Bearing must not be pinched by small bore or because of a cocked outer race. Don't switch housing caps—they are not interchangeable. An undersized housing bore or an out-of-round bore will pinch the bearing and cause early failure.

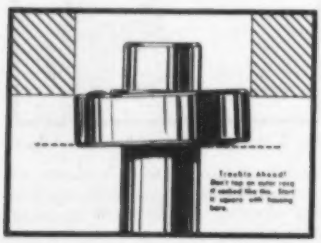

Fig. 8. Race and housing must be square.

Some precaution must be exercised when mounting bearing in a solid housing; i.e., the outer race should be perfectly square with the housing bore before any pressure is applied. Here again, the housing bore should be within the specified tolerances for the bearing size and should be perfectly round. The housing bore and bearing outside diameter should be coated with light oil or micronized graphite to facilitate assembly.

Be sure bearing is square with and held firmly against shaft shoulder. Secure it with a lock nut and lock

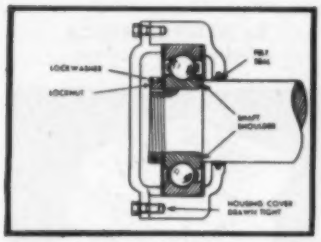

Fig. 9. Hold bearing firmly against shoulder.

washer. Housing covers must be tight to keep lubricant in and dirt out. After *held* bearing has been positioned, the *free* bearing should be located centrally in its housing to permit expansion and contraction of the shaft.

Type of lubricant usually depends on operating conditions—follow machine builder's instructions. When

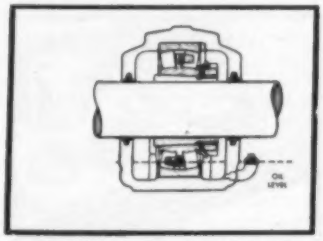

Fig. 10. Lubricate according to directions.

oil is used, cover about half of bottom ball or roller. It is preferred that a sight oil gauge be used and marked so as to show static and operating oil levels. This will greatly help to determine when additional oil is required. The operating level is different than the static level and can be determined only when the bearing is in operation.

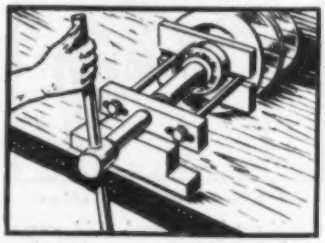

Fig. 11. Use bearing pullers to remove bearings.

To remove a bearing from the shaft, force inner race with press or draw bar and plate. Shaft shoulder must be smaller than inner race to make such removal. A variety of

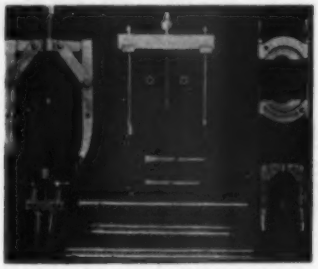

Fig. 12. Types of bearing pullers.

bearing pullers are available. The use of such specialized tools will more than pay for themselves by preventing damage to serviceable bearings. Refer to group of illustrations.

Cover the unfinished job when left for only a few hours or until the next day. Rewrap each bearing to keep out dirt and moisture. When this is necessary, use grease-proof paper. If you do not take care of bearings during installation, they will not last long.

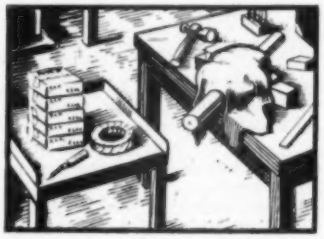

Fig. 13. Cover unfinished work if it is left for a few hours.

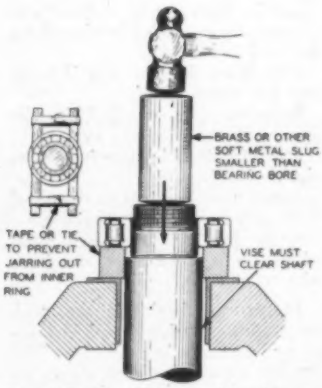
BRASS OR OTHER SOFT METAL SLUG SMALLER THAN BEARING BORE
TAPE OR TIE TO PREVENT JARRING OUT FROM INNER RING
VISE MUST CLEAR SHAFT

Fig. 14. To drive shaft out of bearing use soft metal slug.

Inspection And Assembly Don't try to judge the condition of a bearing until after it has been cleaned.

Don't spin dirty bearings. Rotate them slowly while washing.

Don't spin any bearings with an air hose. Rotate one ring by hand when using air to expose all parts of bearing.

Bearings with a shield or seal on *one side only* should be washed, inspected and handled in the same manner as bearings without shields or seals.

Bearings with shields or seals *on both sides* should *not* be washed. Wipe them off to keep dirt from working inside. Smooth turning bearings can be coated with protective lubricant, then wrapped and stored or used in their original application.

Fig. 15. Soak bearings in plenty of solvent.

If a small tank and wire baskets for soaking and washing bearings are not available, a clean grease can or bucket filled with solvent can be used. Let the bearings soak long enough to loosen the grease and dirt. That may take several hours or longer. Then slosh the bearing around near the top of the container, giving it a turn now and then until it is clean. Rinse in a *clean* container of *clean* solvent.

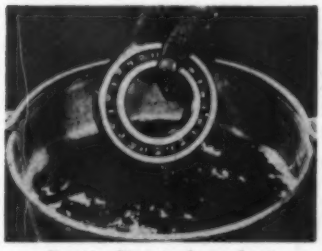

Fig. 16. Rinse in clean solvent.

Bearing cleaning solutions are generally kerosene or gasoline but petroleum solvents intended for bearing cleaning are preferred. Be careful of gasoline containing ethyl or other anti-knock compounds, which are poisonous when absorbed in cuts or inhaled. All of these solvents are highly inflammable and precautions should be taken to prevent fires.

A short, clean bristle brush from which the bristles will not come out or break off is a help in removing dirt, scale or chips.

Fig. 17. Do not spin dirty bearings. It may cause scratching.

After the bearings have been thoroughly cleaned, inspect them immediately.

Inspected bearings which are considered good enough to use again, but can't be reassembled in the equipment on the same day, should be dipped in slushing compound and stored overnight in a tightly covered pan.

If inspected bearings are to be stored for more than a few days, dip them in a protective lubricant or coat all surfaces with a light grease, rotating them to work the grease thoroughly around the rolling membears and on the raceways. Wrap the bearings in greaseproof paper and place in a clean box or carton. Where cartons are not obtainable, wrap them in a waterproof paper and mark the outside of the package to identify the bearing.

Do not leave bearings exposed in partial assemblies. Cover the bearings until ready to complete the assembly, to prevent damage by moisture, dirt or other foreign matter. Any clean cloth or paper will do as long as the bearings are well covered.

Do and Don't On Lubrication Follow instructions when furnished with machinery. Use only grease where grease is specified and oil where oil is specified. Be sure to use exactly the *kind* of lubricant the instructions call for.

Store grease in clean containers. Handle grease with clean paddles or grease guns. Keep grease containers covered.

Don't overfill. Grease or oil will ooze out of overfilled housings past seals and closures, collect dirt and cause trouble. Too much lubricant will also cause overheating. This is particularly true of bearings running at high speeds where the churning of the lubricant will cause the bearings to run excessively hot.

Don't permit any machine to stand around for months without turning it over once in a while so that all surfaces of the bearings will be covered with lubricant. Oil tends to drain down off a standing bearing and moisture may condense in the housing and cause corrosion.

Inspect seals and vents regularly.

(Part III will appear in an early issue)

Production of Gypsum Dips In Third Quarter of 1952

Domestic mine production of crude gypsum during the third quarter of 1952, as reported to the Bureau of Mines, Department of the Interior, was 2,163,875 short tons—5 percent less than in the third quarter of 1951. Imports were 7 percent lower than in the corresponding period last year. Production of calcined gypsum declined 7 percent from the third-quarter, 1951, total.

The quantity of agricultural gypsum produced was 26 percent greater than that of last year, while the tonnage of uncalcined fillers and miscellaneous products increased 80 percent.

The industrial plasters, except those for dental and orthopedic purposes, showed marked declines from third-quarter, 1951, totals. Among building plasters, the sanded plasters (which include perlite-gypsum premixes) showed a remarkable 55 percent increase, whereas all other types declined several percentage points each. As compared to third-quarter, 1951, figures, output of Keene's cement, lath, and tile declined, while wallboard (and laminated board) increased 5 percent and sheathing was up 22 percent.

Nine-month cumulative totals are lower in 1952 than in 1951 for crude gypsum and for every gypsum product except fillers and uncalcined unclassified products—up 1 percent—and sanded plasters, with an increase of 40 percent.

N.Y. Bituminous Producers Attend Third Annual Forum

At the third annual forum sponsored by the New York State Bituminous Concrete Producers Association in Albany, highway engineers of District 1 and blacktop producers discussed methods for producing better highways.

Gus Rayner, executive secretary of the association, was in charge of arranging the program, and George I. Nickerson, district engineer, was moderator of the panel discussion. A special guest was J. J. Forrer, Richmond, Va., manager of the Virginia Asphalt Association.

The Northwestern States Portland Cement Company has purchased a quarry near Mason City, Iowa, which is said to be capable of supplying raw material to the cement plant for nearly a century.

Report on Current Labor Developments

Taft-Hartley Amendments

The current guessing in Washington is that there is less than a fifty-fifty chance that any significant amendments to the Taft-Hartley Act will be passed in this session of Congress. There are many reasons for this view, of which the following are the most important:

(1) There is really no organized or vocal group anxious for amendment. The labor unions, which have been the most ardent proponents of amendment so far, are no longer interested. They are fearful that amendment by the present Congress will only make the law more distasteful to them. For the most part, industry representatives are not unhappy with the law as it now stands. Their principal complaints are not against the statute but rather against its administration by what they regard as a biased National Labor Relations Board.

(2) There is no pressing need for labor legislation at the moment. The labor front is quiescent. No serious strikes are in progress or even pending for several months.

(3) The planned early adjournment of the first session of this Congress will not allow time for completion of the extensive hearings which have been planned, of the extended floor debate which appears to be unavoidable, and for conference committee compromises of divergent points of view. It is likely that the attention of Congress will be required for more serious international matters; so domestic affairs are likely to be postponed.

(4) The principal hope for quick action, namely, to present proposals which had been agreed upon by labor and management, was blasted when the industry members of the United States Department of Labor's Advisory Committee refused to go along with a proposal for voting which had been agreed upon by the public and labor members.

Even before this event, this recently created Advisory Committee ran into trouble when the United States Chamber of Commerce and the National Association of Manufacturers complained about the failure to consult them about the industry membership. There was the clear implication that the Secretary of Labor's choice did not represent the viewpoint of these dominant employer organizations. Remembering the

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Industrial and Labor Economists
Washington, D. C. — Philadelphia, Pa.

success of the Railway Labor Act, which was passed in 1926 without any real difficulty primarily because it had the approval of the affected labor and industry interests, the Administration hoped to accomplish a similar result by establishing this Advisory Committee and assigning to it the task of proposing changes to the Taft-Hartley Act. That the effort was doomed was no surprise to anyone familiar with the history of past labor-management conferences. The special circumstances of the railway industry which made it possible to secure agreement on legislation, and which later made it possible for that legislation to work, is just not reproduced elsewhere in American industry.

Taft-Hartley Emergency Provisions Pass Another Test

The CIO's challenge of the applicability and constitutionality of the Taft-Hartley Act's 80-day emergency injunction provisions was rebuffed again in the Circuit Court.

The CIO argued that the Act's provision for an 80-day injunction against strikes affecting the national health and welfare was inapplicable in the care of the American Locomotive Company's Dunkirk, N. Y., plant because that provision was meant to apply only to industry-wide strikes and not to strikes in individual plants. The Circuit Court did not agree. It conceded that most of the Congressional discussion on the subject concerned industry-wide strikes but that this did not mean that Congress meant to limit action to such strikes. Congress clearly meant to attack the problem of strikes which affect the national health and safety regardless of the particular form those strikes take. If it had meant to confine the application to industry-wide strike, it could have said so.

The attack on the constitutionality of the provision rested on a very fine point, namely, that the provision gave to the courts an administrative rather than a judicial function. The Circuit Court made short shrift of that argument.

More on Free Speech

Before the passage of the Taft-Hartley Act an employer was risking an unfair labor practice charge practically every time he talked to his employees about joining or refraining from joining a union. That Act sought to restore the right of "free speech" by stating specifically that "the expressing of any views, arguments or opinions, or the dissemination thereof, whether in written, printed, graphic, or visual form, shall not constitute or be evidence of an unfair labor practice . . . if such expression contains no threat of reprisal or promise of benefit".

Nevertheless, the National Labor Relations Board has found situations in which it regarded the employer's exercise of free speech so discriminatory that it found him guilty of an unfair labor practice. In the leading Bonwit Teller case, the Board agreed that forbidding solicitation for union membership was not improper because it was in a department store and because such solicitation would interfere seriously with the operation of the business. Nevertheless, when the employer addressed the employees on company time and property shortly before the representation election and then refused to give the union men an opportunity to reply, the Board found him guilty of an unfair labor practice.

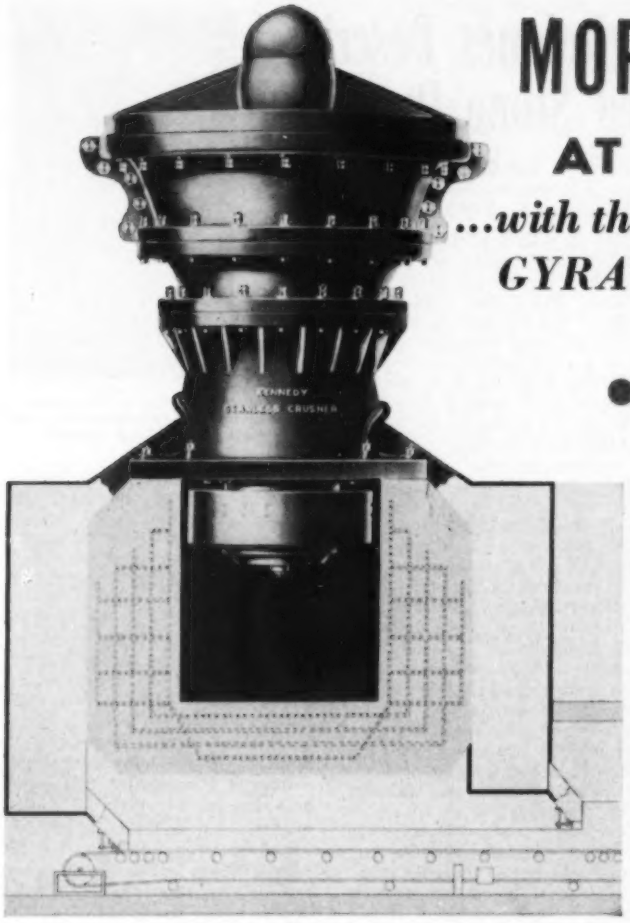
Recently the Board went even further. In a case where the no-solicitation rule was not in effect, the Board also found the employer guilty of an unfair labor practice because he addressed the employees before the election and refused to give th union representatives equal opportunity to present their case.

Chairman Herzog dissented from the Board's action. It is likely that the Board's position will also be challenged in the Courts.

Bell Mineral Corporation Producing High-Grade Spar

The Bell Mineral Corporation, whose plant is at West Paris, Maine, was incorporated in January, 1953, with Richard Bell of the Bell Clay Company, Gleason, Tennessee as president, and W. Wallace Roff of Whittaker, Clark & Daniels, Inc., 260 West Broadway, New York 13, N. Y. as vice-president. The new corporation has appointed Whittaker, Clark & Daniels, Inc., as its eastern sales representative.

Bell will continue to supply "Oxford" high-quality grades of feldspar, which is currently being produced for special uses such as scouring powders, polishes, and filler in plastics, as well as for vitrified ceramics, and related items.



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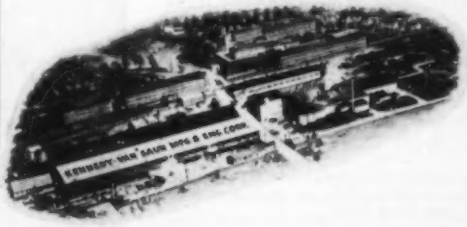

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MANUFACTURING & ENGINEERING CORPORATION

TWO PARK AVENUE, NEW YORK

FACTORY DANVILLE, PA.

Unusual Quarry Techniques Described By Eastern Crushed Stone Producer

By LUTHER F. MILLER
New York Trap Rock Corporation
Newburgh, N. Y.

L. F. Miller, New York Trap Rock Corporation, Newburgh, N.Y., who narrated his company's movie at the N.C.S.A. meeting.

IN preparing the color movies and slides shown at an operating session of the recent National Crushed Stone Association meeting, New York Trap Rock Corporation proceeded along somewhat different lines from other companies participating in the program. Instead of showing general plant operations, we chose to portray a few specific operations, with the hope that the audience could see how we do some things which might be a litttle different from the general practices followed throughout the industry.

The movie began with some views of our Clinton Point plant and quarry, which is rather a large operation. At that plant large blocks are fished out of the Allis-Chalmers No. 21 primary crusher by means of grappling hooks which are operated from an overhead crane. (See photograph.) Two operators stand on opposite sides of the crusher, holding ropes attached to the hooks. They are able to work the hooks around in such a manner that the stone is dislodged and passes on through the crusher. To remove an oversized block both hooks are attached, and the stone is carried outside. From this point it is then hauled away and stored in the quarry for rip-rap.

At our Haverstraw quarry, the upper level has been practically depleted, and all stone is now being quarried from a second level situated 80 ft. below the floor of the first level. Since all of our primary crushing equipment is situated on the first level floor, it is necessary to haul the stone up an incline from the lower level to the primary crusher. For this operation, we use two separate inclines, each consisting of two sets of tracks and two roadways. (See photograph.) Each of these inclines is an independent operation, capable of handling approximately 40 loads per hour. The incline consists primarily of two barney cars running on the rails, each connected to the end of a cable which runs around two sheaves at the top of the incline. A bumper on the front of the empty truck acts as a pusher on the barney car going down the hill. The other car contacts the rear axle of the loaded trailer so that the truck going down pushing on one barney car helps pull the loaded truck up by means of the other which is pushing on the rear axle of the loaded trailer. At the bottom of the incline the little car runs into a pit, allowing the truck chassis to pass over it without delay.

We have devised various safety measures used in connection with our primary blasting. We use the rotary-type delayed-action blasting switch, which fires the holes at a delay interval of about 25 milliseconds. When the rotating blade of this switch contacts the different points, the holes fire.

One safety practice involves the use of an additional blasting cap, whose lead wire is connected to the rotary blasting switch immediately adjacent to the terminal for the last hole fired; the common wire leading to the holes is then wrapped around the cap. (See photograph.) As soon as the last hole has fired, this extra cap fires, blowing the common wire in two, and thereby removing all power leading to the holes. To the next point on the switch another lead wire is attached, and to this we connect two caps, each wrapped around one of the two incoming power lines. When these caps fire, the incoming power lines are blown apart, thereby totally disengaging all power to the blasting switch. In this manner it is impossible to fire any hole that has not gone off on the original sweep of the firing arm. In actual operation, after the common wire is blown in two, the ends are thrown several feet apart. This also applies to the power lines.

Grappling hooks are used for handling large blocks lodged in the primary crusher at the Clinton Point plant.

A unique rail-roadway system is used at the Haverstraw plant for moving stone from the quarry floor to the primary crusher. In this view the empty trucks, each pushing a barney car, are nearing the base of the incline. The returning loaded trucks are not shown.

As a very important safety measure, an additional cap is hooked up to the common wire, which severs this wire immediately following the blast, thereby removing all power leading to the holes. The incoming power lines are similarly blown apart through the use of another cap placed in the circuit.

In connecting up a shot, we tape all joints, using three layers of friction tape on top of all connections. By so doing there is no possibility of premature firing should one of the wires accidentally come in contact with some grounded object.

The movies we showed at the meeting demonstrated exactly what takes place when a delayed-action blast fires. First we showed a front view of 27 holes firing on a 140-ft. face, followed by a 25-hole blast fired looking down along the blast. This gave a good idea as to how the stone actually peels off the face in a wave, as the various holes fire. Next we showed 21 holes firing on a face about 120 ft. high, and last an 11-hole shot of an 80-ft. face. (It may be added here that the movies of these blasts were undoubtedly among the best ever made—Editor's note.) After our blasts are fired, a bulldozer pushes the stone in, and one of the shovels casts the pile over so that he can start digging.

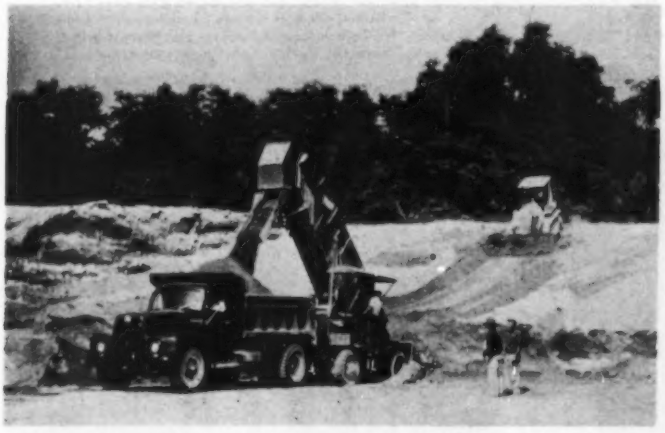
Since we make use of electric motors having a combined capacity of 25,000 hp. in our operations, it is quite important to have spare equipment available to replace motors when breakdowns occur. For this purpose we have several storage places where these motors are kept. In one building we have about 100 spare motors, ranging in size from ½ hp. to 200 hp. From this storage room we can replace on very short notice any motor that might go bad. These motors are tested at regular intervals, first by means of a megger. After this is done, they are run at full voltage. When one of the motor "meggers" lower than it should, steps are immediately taken to dry the motor out and bring the reading up, so that we are assured it will be in good condition when it is called for. We also use a color scheme in painting our electrical equipment. All outside surfaces of switches, starters, etc., are painted blue, and the inside covers are painted orange.

A few years ago we started thermit welding the boxes and wire rope sockets on well drill stems used in our operation. We were having trouble and delays in shipping these stems away to be welded and found that we could do the job equally well in our own plants. A tram was made in which to lay the stem and box or socket. It is necessary, of course, to align these parts very accurately. After the stem is placed in the tram, it is cut off by means of an acetylene burner. The end is evened up, and the box or socket brought up to within about 1 inch of the stem. A mold is then placed around these parts, and the end of the stem and box are heated for about two hours or until they become cherry red. The box of thermit is then placed on top of the mold and ignited. When the thermit reaches a melting stage, the plug is pulled and it runs down into the joint, thus welding the two ends together. When the molds are removed, only a small amount of excess thermit is left, and this is cut off by means of a chipping hammer and grinder. We have found this method very economical.

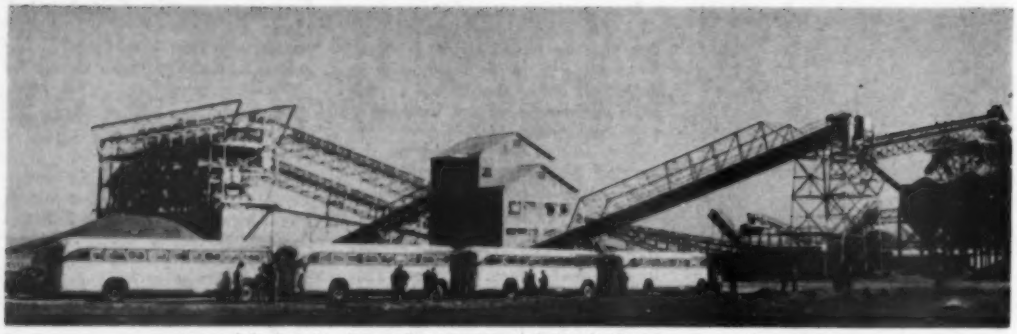
Our methods of reclaiming screenings are probably similar to those used by many of you, but we have experienced cases in the past in

(*Continued on page* 115.)

A well drill stem is ground, preparatory to thermit welding. A sonic testing device is used to determine cracks or flaws in the stem.



Screenings piled on low banks are fed to a mechanical loader by means of a bulldozer.



Some of the buses lined up at the Eliot plant of the Pacific Coast Aggregates Corporation.

37th Annual Convention of in San Francisco a Complete

An ideal combination of business, plant inspection, and outside activities

Left: H. G. Feraud, Southern California Rock Products Assn.; B. F. Carter, superintendent of the Radum, Calif., plant of the Henry J. Kaiser Co.; and P. J. Akmadzich, City Rock Company, Sunland, Calif.

E. R. Booker, Rock, Sand and Gravel Producers Assn. of Northern California; George Hampton, chief engineer, Bill Bottino, superintendent, and Warren Brown, safety engineer, Pacific Coast Aggregates Corp.

N. S. G. A. *Success . . .*

in one of the country's finest hotels on top of famous and exclusive Nob Hill, was highly suitable for one of the best meetings these groups have ever had in a non-exhibit year. Holding these meetings in San Francisco was also an appropriate recognition of the support and cooperation both associations have received over the years from producers in California and other western states.

Holding these conventions in four days instead of the usual five, together with the fact that a full day was set aside for plant field trips, made it necessary to cover more ground in fewer days. Rather than to cut down on the number and variety of subjects discussed, it was decided to double up to a greater extent than ever before. On Monday morning, February 23, the two boards of directors had a joint meeting. On Monday afternoon there was one joint meeting, but on Tuesday morning and afternoon, and Thursday morning there were two simultaneous joint sessions, so arranged that each of the two concurrent sessions covered subjects of an entirely different character from the other. In this way it was in most cases possible for a producer to select the meetings of greatest interest to him or, as many did, to shuttle back and forth between them. The final meetings on Thursday afternoon were separate business meetings of each association. This method of programming has made the problem of reporting these meetings to our readers a little more difficult than usual. In order to be fair to both sand and gravel and ready mix readers we are running both in PIT AND QUARRY and THE CONCRETE MANUFACTURER all material of interest to both, and in each, of course, all material of direct interest to the industry covered.

A study of the program will make it apparent that it was at least up to previous high standards. In line with the expressed preferences of members, there was a maximum of informality in the program, which was made up principally of addresses by men drawn from the ranks of the industries, who spoke about everyday problems of their businesses. Those speakers who were from outside the field were men whose offices or whose relationships to these industries made them important. Among the many subjects discussed were group bargaining, group insurance, heavy media in gravel production, production and specification problems, percentage depletion, cost determination, industrial radio, sales agreements, merchandising, sales policies, activities of state associations, zoning and pollution problems, cement supply, safety policies, legal and governmental developments and business prospects.

Mrs. Sapienza and John T. Sapienza, counsel for N.S.G.A. and N.R.M.C.A.

There was no machinery exposition this year, but every effort was made to give producers and machinery company representatives ample opportunity to get together. Monday morning was open for all except directors; formal entertainment was limited to a joint luncheon on Tuesday; noons and evenings were left entirely open. In addition a large room near the meeting rooms was set aside from 9 a.m. to 5 p.m. each day throughout the convention for the associate members, most of whom had to stay at other hotels due to lack of space at the Fairmont. Also every evening from 5 p.m. to 7:30 p.m. there a hospitality room was available, with music, entertainment, and liquid refreshments. This was a substitute for the manufacturers' reception, which featured past conventions and further facilitated contacts

Anson S. Blake, Blake Bros. Co., Richmond, Calif., and E. F. Brovelli, Basalt Rock Co., Inc., Napa, Calif.

Mr. and Mrs. James A. Hart, Chicago Gravel Co., Chicago, Ill.; and Emil Deister Jr., Deister Machine Co., Fort Wayne, Ind.

Mrs. Andersen and F. N. Andersen, Andersen Sand and Gravel Co., Saginaw, Mich.

between active and associate members.

Officers and Directors All officers of the National Sand and Gravel Assn. were re-elected at this convention. They are: president, Albert R. Shiely (J. L. Shiely Co., St. Paul, Minn.); vice-president, John W. Murphy (Union Sand and Gravel Co., Spokane, Wash.); secretary-treasurer, Roy E. Weaver (Lincoln Sand and Gravel Co., Lincoln, Ill.). A new member of the executive committee is Howard W. Jordan (Metropolitan Sand & Gravel Corp., Port Washington, Long Island, N. Y.). Robert S. Barneyback (Henry J. Kaiser Co., Oakland, Calif.) was the only new director elected.

Coming Conventions At the combined meeting of the two boards of directors on Monday morning, February 23, dates and locations of coming meetings were announced. The fall meetings of the two boards will be at the Broadmoor, Colorado Springs, Colo., on September 28, 29, and 30, 1953. The 1954 annual conventions and machinery exposition will be at the Hilton Hotel, Chicago, from February 15 to 19. The convention and exposition of the National Crushed Stone Association will be held the week following. In 1955, a non-exhibit year, the combined annual conventions will be at the Columbus and McAllister Hotels, Miami, Fla., from January 9 to 13, inclusive. The Hilton Hotel, Chicago, has been definitely selected as the site for the 1956 annual convention and machinery exposition, but dates are not yet available.

Manufacturers' Division The Manufacturers Division of the National Sand and Gravel Assn. held its annual meeting at a breakfast. Several new officers and directors were elected. The new chairman is Emory M. Heuston (Bucyrus-Erie Co., South Milwaukee, Wis.). D. McM. Blackburn (Hendrick Mfg. Co., Carbondale, Pa.), is a new vice-chairman, and Neil Richardson (Universal Engineering Co.) is a new member of the board of directors.

Joint Luncheon The joint luncheon on Tuesday, February 24, was presided over by Richard K. Humphries, president of N.R.M.C.A. After a few brief welcoming remarks he introduced, among others, Anson S. Blake, president of Blake Bros. Co., Richmond, Calif., dean of California producers, and probably of the entire crushed stone industry. The featured speaker,

Charles E. Brady and Burl H. Brady, Material Sales Co., Salisbury, N. C.; and William J. Doyle, Jr., Tulsa Sand Co., Tulsa, Okla.

Louis B. Lundborg, vice-president, Bank of America, San Francisco, gave interesting highlights of the history, expansion, and attractions of this area. San Francisco is, he said, probably our most cosmopolitan city with nearly every race and nationality represented in its population, many having their own colonies. Mr. Lundborg pointed out that California, up until World War II, was largely an agricultural state and that, although it is now evenly divided between industry and agriculture, it is still the top agricultural state. In diversity of manufacturing it is second only to New York state.

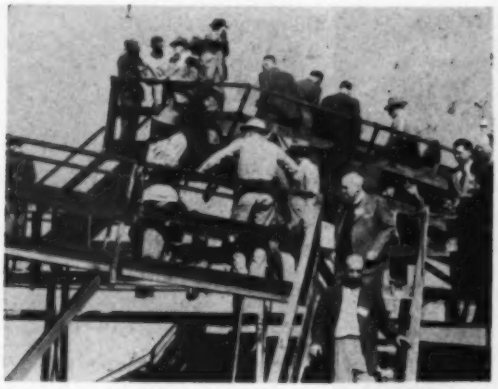
Plant Field Trips The third day of the four-day meeting was devoted to a plant field trip to two of this country's largest and best sand-and-gravel plants. This event was so popular with both sand-and-gravel and ready-mix producers that eight or ten Greyhound buses were required to transport them. A number of ladies also made this trip in preference to the special trips planned for them.

Because of traffic congestion problems it was not practicable to include ready-mixed-concrete plants on this trip. Instead, special group trips were arranged to five modern ready-mix plants in the area which were open to those attending the conventions.

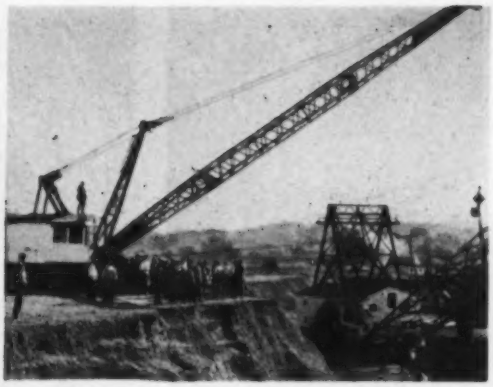
The buses for the field trip left the Fairmont Hotel in a group and proceeded south on Bayshore Highway to the Stanford University campus, then across southern San Francisco Bay *via* Dumbarton Bridge and through Niles Canyon into Livermore Valley, where much of the sand and gravel used in this area is produced. There the party divided into two groups, one going first to the Radum plant of the Henry J. Kaiser Company and then to the Eliot plant of Pacific Coast Aggregates Corporation, and the other reversing this arrangement. This arrangement worked out very well. An excellent hot lunch was served on the buses between plant inspections. On the return trip the buses followed an entirely different but even more scenic route *via* the San Ramon Valley to Walnut Creek, then west through the Broadway low-level tunnel in Berkeley and the Eastshore Highway in Oakland and the San Francisco-Oakland Bay Bridge.

The plants visited are two of the largest and most efficient operations in this country, each having a capacity of 1,000 t.p.h., and each producing a similar wide range of products. In their histories and design, however, these plants differ widely. The Radum plant was built in 1930 with a capacity of 500 t.p.h. and provisions for future expansion. Its design, in line with the practice in those days, was as compact as possible in a plant using belt conveyors exclusively. Because of its basic soundness of design this plant has easily kept up with the best modern practice, the only problem having been space for expansion and additions. This is believed to have been the first commercial sand-and-gravel plant to divide the sand into three fractions to be combined later to meet any desired specifications, and the first to use bowl-and-rake classifiers on a large scale. Ready-mixed concrete and bituminized aggregates are also produced at this location. Numerous articles in PIT AND QUARRY have recorded the important steps in the expansion of this plant.

The Eliot plant was built in 1950 and follows the trend in recent years of carrying out different stages of processing in widely separated tow-



Watching grinding for fines at the Henry J. Kaiser Company's Radum plant.



Interested spectators observing pit operations at the Kaiser Radum plant.

ers or buildings connected by long straight belt conveyors. This plant covers a large area, and there is ample space for any future additions or expansions. It was completely described in PIT AND QUARRY shortly after it went into operation.

Both plants are built entirely of steel and concrete and both use large draglines in their pits for both wet and dry recovery of the sand and gravel. Both suffer from a deficiency of 50- to 100-mesh material in their deposits and use rod mills to grind pea gravel to supply the needed fines. They gave producers an unparalleled opportunity to study and compare two basically different types of operations of the same capacity and producing the same types and sizes of materials. Both companies and their plant and managerial staffs are to be complimented on the courteous and efficient manner in which the visitors were escorted over and through these operations and all details explained to them.

Opening Address The fabulous Gold Room of the Fairmont Hotel was filled nearly to capacity as the presiding officer, E. F. Brovelli (Basalt Rock Co., Napa, Calif.), called the opening session of the combined convention to order. Mr. Brovelli, President Albert R. Shiely (J. L. Shiely Co., St. Paul) of the National Sand and Gravel Assn., President Richard Humphries (Pacific Coast Aggregates, Inc., San Francisco) of the National Ready Mixed Concrete Assn., and Frank B. Durkee, Public Works Director of the State of California, joined in a rousing welcome to the producers, who came from nearly every state in the Union and as far away as Havana, Cuba. Gavels fashioned from the burl of a California redwood tree estimated to be 2,000 years old were presented to each association president at this session by the Redwood Empire Association.

Mrs. Everist and T. S. Everist, L. G. Everest, Inc., Sioux Falls, S. D.

President's Address President Shiely, in his opening address, dwelt at some length on the management-labor relations problem, declaring that the greatest threat to the welfare of this country comes from the power exerted by management and labor in nationwide and industrywide negotiations. "This power," he declared, "must be curbed. No organization of any kind in this great country should have the power to tie up our entire economy for their own selfish interests." He suggested the following program in dealing with the problem:

1. Charter all international unions.
2. Revoke the charter and fine any international union which authorizes or contributes benefits to strikes in more than one state at one time.
3. Where labor laws, federal vs. state, conflict, the state law should prevail.
4. Penalize employers if they lock out employees in more than one state at a time.
5. Make injunctions apply equally to strikes and lockouts.
6. Prohibit employers from shipping to customers in the state where their employees are on strike or lockout from other plants of the same company in other states.

In short, said Mr. Shiely, we need to put collective bargaining on a scale no larger than the geographical limits of one state and to make the rules so that management and labor have a healthy respect for what each can do to the other if they do not reach an amicable agreement. When we do that we shall, in his opinion, make real progress in collective bargaining.

Ahearn's Report In his annual report to the two associations, Vincent P. Ahearn, executive secretary, gave the latest information on the multitudinous subjects of interest to these industries, as well as a summary of association activities. He described what has been done by the staff with respect to price, wage, and material controls; percentage depletion; renegotiation; industrial radio; freight rate increases; car cleaning and repair; the wage and hour law; industrial relations; safety; group insurance; zoning and land rehabilitation; cost determination; state and area associations, etc.; and what the future may hold in each of these categories. With regard to cement supplies in 1953, Mr. Ahearn was pessimistic, as the results of a study recently completed by the association indicate that, especially in the fall months, there will be serious shortages in some areas, and not much relief is expected in 1954.

In discussing the outlook for 1953,

Joe Mironi and Virgil Bottarini, Basalt Rock Co., Napa, Calif.

E. C. Derry and A. H. Smith, A. H. Smith, Branchville, Md.

E. H. Manke, Marks Tractor & Equipment Co., Cleveland, Ohio; and C. A. Persons, West Side Lumber & Coal Co., Elyria, Ohio.

he said that all indications point to a higher volume of construction than in 1952, emphasizing particularly the growing awareness of the accumulating highway crisis and what is being done about it. With respect to sand-and-gravel production statistics, he suggested that N.S.G.A. consider a program of its own similar to that launched by N.R.M.C.A. last year, instead of depending on government statistics, which always lag a year or more. He estimated that sand-and-gravel production in 1952 exceeded the 1951 all-time high by at least 6 percent for a probable 416,206,000 tons, valued at about $332,965,000.

For the first time, said Mr. Ahearn, we really know something about ready-mix production, due to the questionnaire sent out last year by the association to all ready-mix producers of record. Reports from 691 producers showed that in 1951 they produced a total of 37,160,191 cu. yd. of concrete, valued at $424,136,796 and that they used over 50,000,000 barrels of cement. Encouraged by this gratifying response, said Mr. Ahearn, the association has already begun its study of the industry in 1952.

In conclusion, Mr. Ahearn said that both associations are in excellent financial condition. N.S.G.A. has an all-time high of 232 active members and 76 associate members. N.R.M.C.A. membership is also at a new peak of 568 active members and 79 associate members, representing 47 of the 48 states, Alaska, Hawaii, and Puerto Rico, as well as Australia, Brazil, Canada, Cuba, England, Denmark, Mexico, New Zealand, and Venezuela.

Report of Engineering Director In his annual report the director of engineering, Stanton Walker, presented a review of the work undertaken by the engineering staff of the two associations. He described the facilities that are available and the organization of the work, pointing out that the engineering staff is small and that personnel is a problem as trained men are difficult to obtain. This same situation arises in the engineering scholarships sponsored by the associations. Only half are being awarded as qualified students cannot be found due to the draft and high industrial wages. In spite of the small staff a considerable amount of work has been accomplished.

One of the most important activities of the engineering department is the annual Short Course on Aggregates and Concrete presented at the University of Maryland. This course, which is participated in by the university, is designed to train representatives of member companies of the associations in specifications, quality control, and other phases of aggregate and ready-mix production.

In addition to the short course sponsored by the association, the director of engineering is called on to participate in several other courses and conferences throughout the country, which are sponsored by local groups and universities.

Preparing specifications in co-operation with other interested groups and conducting tests on them takes a large part of the engineering staff's time, said Mr. Walker. Several projects are currently under way in this field, and one recent result was the 1952 revision of aggregate specifications dealing with concrete, plaster, and masonry mortar by the A.S.T.M.

Lightweight aggregates are becoming more important, Mr. Walker stated. They range from materials that will make structural concrete all the way to those that are primarily of insulating and fireproofing value. The association is co-operating on work to classify and evaluate these materials properly and to write specifications that will protect both the producer and the user of lightweight materials. The association is recommending that specifications for these aggregates be based on their performance in concrete. While these materials offer competition in the fields where reduction of weight is important, such fields do not represent the large-volume uses of sand and gravel.

One of the important functions of the laboratory, said Mr. Walker, is the evaluation of specific aggregates. These are not routine tests of the type to determine compliance with specifications but performance tests to determine the value of the aggregates in use. Some of the studies on the evaluation of aggregates have been in measuring the effects of certain aggregate processing methods—principally heavy media, and, to a limited extent, soft stone elimination. Some of the recent laboratory reports have furnished information on the effects of deleterious particles and the degree of improvement that may be expected from soft particle elimination by crushing and heavy-media separation.

The current research scholarship project, said Mr. Walker, is to evaluate the use of sand and gravel in bituminous mixes. New equipment has been purchased for mixing and for making the Marshall and Hubbard-Field stability tests, and direct compression tests. The studies in this field will touch on the effects of grading, particle shape, and anti-stripping additives on the stability and durability of bituminous mixes.

Publications of the engineering department are sent out as routine material; however, a number of publications need revising and bringing up-to-date, such as *Specifications for Sand and Gravel.*

Legal and Labor Developments

A feature of these conventions which has become a must for all attending is the annual analysis of the Washington scene by Vincent P. Ahearn, executive secretary of both associations. His address was entitled *The New Administration and the New Congress,* and in it he presented an encouraging picture of what lies ahead of us. He had only praise for President Eisenhower and the manner in which he has thus far conducted himself and the affairs of the nation. Our President, he said, intends to carry out his campaign promises and other obligations and commitments and will make his own decisions, basing them on what best serves the public interest. The appointments he has made to public office have been measured by the qualifications of the men for honorable service and not by political expediency. Our constitutional society, he said, justifies our faith only if its administration is entrusted to men who are dedicated to the public service. This system has survived many crises, and its principles are still rooted strongly in our way of life.

Our President, said Mr. Ahearn, shares with the really great presidents of the past an attachment for the constitutional division of powers among the chief executive, the legislative, and the courts. Congress is very jealous of its place in our constitutional scheme; each branch resists any effort by the other to invade its proper sphere of influence, but both branches join together to repel any assaults by the chief executive or the courts. The separation of government powers into three coordinated departments, he said, erects a system of checks and balances which keeps the powers of each arm within its proper limits.

Mr. Ahearn emphasized the seriousness of many of the decisions our President will have to make and the extent to which he will have to depend on the organization he has built up around himself. He described some of the difficult decisions which have already been made and analyzed the qualifications of the various new Cabinet members and those appointed to other high offices.

The President, said Mr. Ahearn, is determined to re-establish the prestige and dignity of our foreign policy; he will press forward with the defense program; and he will be watchful of waste and inefficiency in the spending of the vast appropriations for defense. At the same time he must keep open the channels of international commerce and solve our budgetary deficit. Already, he said, the President has taken a firm stand against the reduction of taxes before the budget is brought into balance. As a result, business should not expect more than the ending of the excess profits tax law on June 30, if that.

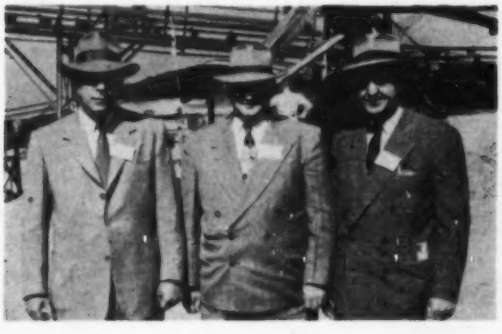
In spite of the pressure from labor unions, it is deemed unlikely that the Taft-Hartley Law will undergo extensive changes this year or next. Much labor trouble is expected because the unions find it difficult to realize that, while this government is committed to the right of collective bargaining, it is also committed above all to the protection of the superior rights of all of the people. Union leaders, said Mr. Ahearn, seem determined to goad our country into bringing about the enactment of legislation which will cancel some of the power which unions have acquired by law and by custom.

As we watch this panorama of the great and almost frightening decisions which the President alone must make, we will all agree, said Mr. Ahearn, that he should have our sympathy, our patience, and our tolerance. He carries our hopes, our ambitions, and our confidence. In appraising the awful agenda of our national problems, we will not fail to count our blessings. We have much to live for and much to be thankful for. We face an exciting and never dull future, full of danger but also full of hope. It will be good to be alive and good to live in a country with a modest man as President who has already shown his capacity to lead and to inspire.

Percentage Depletion In view of the intense interest in the matter of percentage depletion for the sand-and-gravel industry, the talk on this subject by John T. Sapienza, association counsel, brought out a sizable audience. In Mr. Sapienza's opinion, the 5 percent depletion allowance granted the industry as of January 1, 1951, can be retained if members of the industry remain ever vigilant and ready to meet the attacks which have been made and which will continue to be leveled upon the hard-won gains. He urged all to promulgate constantly the arguments that sand-and-gravel reserves are indeed definitely exhaustible; that these minerals, so commonly held to be in tremendous supply, are in fact being depleted and exhausted constantly throughout the country; and that encroachment of housing projects upon gravel lands and resultant restrictive zoning laws are taking out of future production billions of tons of accessible material.

Constructively, he urged the industry individually and collectively to cast aside the negative approach and fight for even higher depletion allowances, declaring that 10 or even 15 percent would be more logical.

Mr. Sapienza reviewed the history and various aspects of percentage



Left: A. P. Jones, Lyman-Richey Sand & Gravel Corp., Omaha, Nebr.; R. G. King, Master Builders Co., Des Moines, Iowa; and G. R. Bathe, Lyman-Richey.

Right: Robert S. Barneyback, Henry J. Kaiser Co., explaining the Radum plant to E. P. Gemmer, Texas Construction Materials Co., Houston, Tex.

depletion, as outlined in the association's widely distributed "blue book", and which have been publicized in this journal over the past two years.

He again cautioned producers not to rely on oral leases in case they do not own their deposits, since the Bureau of Internal Revenue will recognize only written leases. To obtain benefits, a producer must show a profit, he reiterated, since depletion allowances may not be taken in a year showing a loss.

Group Bargaining In the absence of George H. Maywald, president of the Lake County Ready Mixed Concrete Association, East Chicago, Ind., his paper, *Group Bargaining in Lake County, Indiana,* was read by Vincent P. Ahearn, executive secretary of N.S.G.A. and N.R.M.C.A. Prior to 1948 the ready-mixed concrete companies in Lake County bargained separately, and each company tried to negotiate its own contracts, but with poor results. The association was formed in 1948 with the purpose of negotiating all labor contracts for these companies. The first contract was not in the full sense a county-wide contract as there were differences in wage rates and working conditions. In 1949 the association was complete.

Charles H. Bussmann, Pit and Quarry Publications, Inc., Cleveland, Ohio; Thor W. Becken, Transit-Mix Concrete Co., St. Paul, Minn.; and Walter E. Trauffer, Pit and Quarry Publications, Chicago.

Mr. Maywald was made chairman of the negotiating committee. The old contracts had different rates and classifications of trucks. The first job was to standardize the rates in accordance with the manufacturers' rated capacity of trucks; to adjust these rates; also to standardize the working conditions. The contract was to run for two years with the right of either party to open for wage rates only after one year. This contract was completed and signed in October, 1949.

In April, 1950, the union served notice that it wanted to open the contracts, and Mr. Maywald was appointed sole negotiator for the association. After several meetings with the representative of the Teamsters' Union it became apparent that the union wanted to change the whole contract. By July matters had reached a stalemate, and the union ordered all workers at one plant off the job in spite of the warning that a strike at one plant would be considered a strike against the association. When all plants were closed down, the union called it a lock-out and called in the United States Mediation Service. The association offered an 11-cent per hour increase across the board with all of the terms of the old contract; a 19-cent increase was finally agreed upon. This was supposed to be a two-year contract with an expiration date of June 30, 1952. This contract also had in it an article which provided that in the event of any new federal or state legislation, directives, etc., affecting wages, hours, or working conditions, those portions of the contract would automatically be opened for negotiations by both parties.

After only a few months the union found a pretext for disputing one of the provisions of this contract, and

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CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. Rexarc Hard-Facing and Manganese Electrodes. Form RX-6-90-52. An 8-page booklet describing the company's line of "Rexarc Electrodes" for rebuilding and hardfacing of machine parts subject to extreme wear, impact, corrosion, and abrasion. The bulletin gives details of each electrode in the series and recommended applications. Included are tips for obtaining best results when applying these types of electrodes. The Sight Feed Generator Company.

2. The New Art in Industrial Pulverizing. This illustrated bulletin shows the construction and operation of a jet pulverizer in photos and cutaway drawings. The operation of the machine is explained in the text and detailed information on the engineering, operation and assembly of the unit is given. MaJac Engineering Company.

3. Type B Dodge Taper-Lock Stock Sprockets. This is a series of catalog sheets each of which describes the sizes of sprockets in stock for a particular pitch chain. The matching taper-lock bushings are listed and prices are given. An additional sheet gives dimensions, bores and other information on the taper-lock bushings for use with the sprockets. Dodge Manufacturing Company.

4. Bulldog Hammermills. List of Installations. This is list of some of the prominent and outstanding installations of hammermills supplied by the company for primary, secondary, and fine reduction of a wide variety of materials. Hammermills, Inc. Div. of Pettibone-Mulliken Corp.

5. The Little Giant Crane, Shovel, Trenchoe. Catalog 158. The sixteen pages of this catalog present the history, construction, features, and attachments of a ½ cu. yd. and a ¾ cu. yd. shovel. Photos show action views of the different mountings and attachments. The features of the machines are described and summarized and specifications are included. Little Giant Crane and Shovel, Inc.

6. Wisconsin Motor Corporation 1952 Annual Report. Form No. S-146. About half of this 12-page bulletin is given over to the financial details of the company's operations. The remainder is used to present new products, and to illustrate the market for the company's line of air-cooled engines. Wisconsin Motor Corporation.

7. Bros Loctro-Lift Material Handling Truck Body. Form No. RE-117. This four-page folder illustrates a crane type unloader and loader for truck bodies. Photos show the details of the overhead carrying mechanism and the hoisting arrangement. Specifications for several models are included and data on delivery costs, loads, etc. are given. William Bros Boiler and Manufacturing Company.

8. Longyear Diamond Core Drills, Equipment and Supplies. General Bulletin No. 26. The four pages of this catalog insert folder describes a line of drilling equipment for prospecting, or production drilling where diamond drills are used. The models are illustrated and the accompanying text points out the application and use of each. Specifications for the line are included and some of the other products are mentioned. E. J. Longyear Company.

9. Builders Conveyolio Meter. Bulletin E4-550. This 16-page booklet presents the details, features, and advantages of a conveyor belt mounted flow meter. Drawings show the mechanism of the machine while a large diagram illustrates the assembly of the weigher on an existing conveyor. Several flow sheets are given and applications are listed. Features of the meter are summarized and the components and operation are explained in the text. Builders-Providence, Inc.

10. Your Boiler is Obsolete Unless You Can Cure in Two Hours. The four pages of this folder present the advantages of a boiler that is designed to produce steam for concrete curing purposes. Several testimonials are given and the dimensions of the unit are tabulated. Burkhart Engineering Association.

11. Chemico P-A Gas Scrubbers. Chemico Bulletin M-102. This 8-page bulletin presents two types of Pease-Anthony gas scrubbers. Each type is shown by installation photos and drawings, and the operation is clearly brought out and performance data is given. Suggested applications are listed, and advantages cited. Among the suggested uses are listed sintering plants, kilns, superphosphate plants, and others where fine dust, mist or fumes are problems in the waste gases. Chemical Construction Company.

12. Evanstee! Safety Hook. A safety hook that cannot be unlocked when loaded is the subject of this pocket-size folder. The hook is shown in open and closed position and the operation is described. This folder deals with the threaded shank type but other types of fastening are available. Chicago Steel Foundry Company.

13. Aeroflex Plastic Tubing. This folder uses drawings to show the use of split plastic tubing in covering wires of prestressed concrete to prevent the steel from bonding with the concrete. Advantages of the plastic over other methods are listed and the ease of applying is stressed. Dimensions are given and diagrams of prestressed girders are shown. Anchor Plastics Company.

14. The '53 Mogul. A folder that gives the specifications of a 3-block machine. The advantages of the line are presented and drawings of the various shapes that can be made are shown. Testimonials are included and the major features are listed. Lith-I-Bar Co.

15. Shaft-King. The New Speed-Reduction Drive. SRC 12-52. The 20 pages of this bulletin illustrate and describe a

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line of shaft mounted speed reducers. The catalog gives complete information and dimensions of the various units, their use and installation, and instructions for ordering the correct size unit for a specific application. Cutaway drawings show construction details. Allied products such as pulley sheaves, adjustable speed sheaves, pulleys, backstops and motor bases are illustrated. The American Pulley Company.

16. The Colmonoy Sprayweldor. The methods and techniques that are used to apply powdered hard facing alloys and then weld them to the parts in a three-step process are covered in this folder. Applications are listed and the advantages and limitations of the process are pointed out. The equipment is shown and described. Wall Colmonoy Corp.

17. Gar Bon Allsteel Dump Bodies and Hoists. 1-4512. This 8-page catalog describes the line of dump bodies, hydraulic hoists and end-loaders made by the company. A table is included that enables the user to select the exact hoist needed for a particular application. Action photographs, engineering diagrams, and complete technical data and specifications are included. The line covers equipment for light pick-up service to tandem-axle trailers. Gallion Allsteel Body Company.

18. Link-Belt Speeder 51 Series. Book No. 2428. The 24 pages of this catalog cover a complete line of ½-cu. yd. shovel-cranes. This includes a crawler-mounted, a truck-mounted, and a wheel-mounted model. Photos show the equipment under operating conditions. Data on the upper machinery, crawler, truck and wheel-mounted lower mechanisms, and the hydraulic system is included. The catalog also points out the convertibility of the shovel-cranes into shovels, draglines, cranes, clamshells, trench hoes and pile drivers. Link-Belt Speeder Corporation.

19. Control Centers. Booklet B-5621. This 31-page booklet discusses the characteristics of control centers that make for flexibility of application, ease of servicing, and safety of personnel. Three types of control centers are described and the various electrical components that make up typical units are illustrated and defined. A system of planning control centers is given along with charts to aid the selection of right control center arrangement. Westinghouse Electric Corporation.

20. Farrell-Cheek Wire Rope Fittings and Accessories. Catalog No. 22. Sockets, hooks, sheaves, thimbles, clips and cutters are the items covered by this sixteen page booklet. Each style is shown by photos and drawings and tables of dimensions are included for each. The special alloy steel used in making the fittings is described and the advantages of the products cited. Farrell-Cheek Steel Company.

21. Cab Diversion Valve. This sheet illustrates a valve used in pneumatic conveyor systems. It is designed to handle dry, powdered air-blown material. The use of a transition cage for changing the direction of flow is explained so that an unrestricted flow results in either the straight through or diverted position. Cab Design Corp.

22. There's an Arrow Dozer behind this load. Illustrations show the major components of the dozer, and some of the steps in fabricating the blades. Application photos show the mounting of tilting type, straight type and angle type of blades. Clearing rakes that are interchangeable with the angledozer are shown as well as a ripper. Arrow Manufacturing Company.

23. Rowe Adjustable Ramps for Loading Docks. The Adjust-A-Dock and Adjust-A-Truck methods of increasing handling efficiency on shipping docks are illustrated and described in this 4-page folder. The folder shows the method of installation and the operation of each system. Rowe Methods, Inc.

24. Diamond Single Pass Gravel Plant Series 100. Bulletin No. 1000. This folder shows a portable gravel plant and points out the major features of it. Specifications are included. Diamond Iron Works.

25. Bin Stuck Lately? Catalog No. 106. This 6-page catalog is a pictorial type using illustrations and cartoons to bring out the points about the vibratory equipment covered by the catalog. Various applications on bins, hoppers, molds, cars, tables and other places where vibration is needed to improve flow of materials are shown. The Cleveland Vibrator Company.

26. Hercules Explosives and Blasting Supplies. Form 200-66. The latest information on a complete line of industrial explosives and blasting supplies are contained in this 60-page booklet. Characteristics of the explosives are tabulated and references are made to the page where each is described. Blasting caps, delay caps, fuse, fuse lighters, blasting machines, connecting wire, mats, magazines, signs and flags, and everything needed for blasting under virtually all conditions are covered in the book. Hercules Powder Company.

27. Baldwin-Rex Roller Chain and Sprockets. Bulletin No. 52-1. The advantages of roller chain are described in this 54-page booklet. It also illustrates all the popular sizes of chains. A section deals with "how to select standard roller chain drives" with formulas, tables and examples. Another section of the bulletin deals with sprockets and gives characteristics, bore, keyway, and setscrew information. Maintenance of chain drives is covered and information on chain vises, flexible couplings, and coupling covers is treated. Baldwin-Duckworth Division, Chain Belt Company.

28. The New Oliver OC-18. A tractor in the heavy-duty class is described in the eight pages of this bulletin. Application photos, diagrams and sketches are used to bring out the characteristics and advantages of the machine. Complete specifications are also given. Features of the machine are keyed to a photo and diagrams and text point out the value. The Oliver Corporation.

29. Quick-Seal Tamping Plugs. This single page bulletin graphically shows a method of stemming by use of plugs. Drawings show how the asbestos paper cylinder is inserted in the blast hole and then expanded by a conical wooden wedge to seal the opening. National Mine Service Co.

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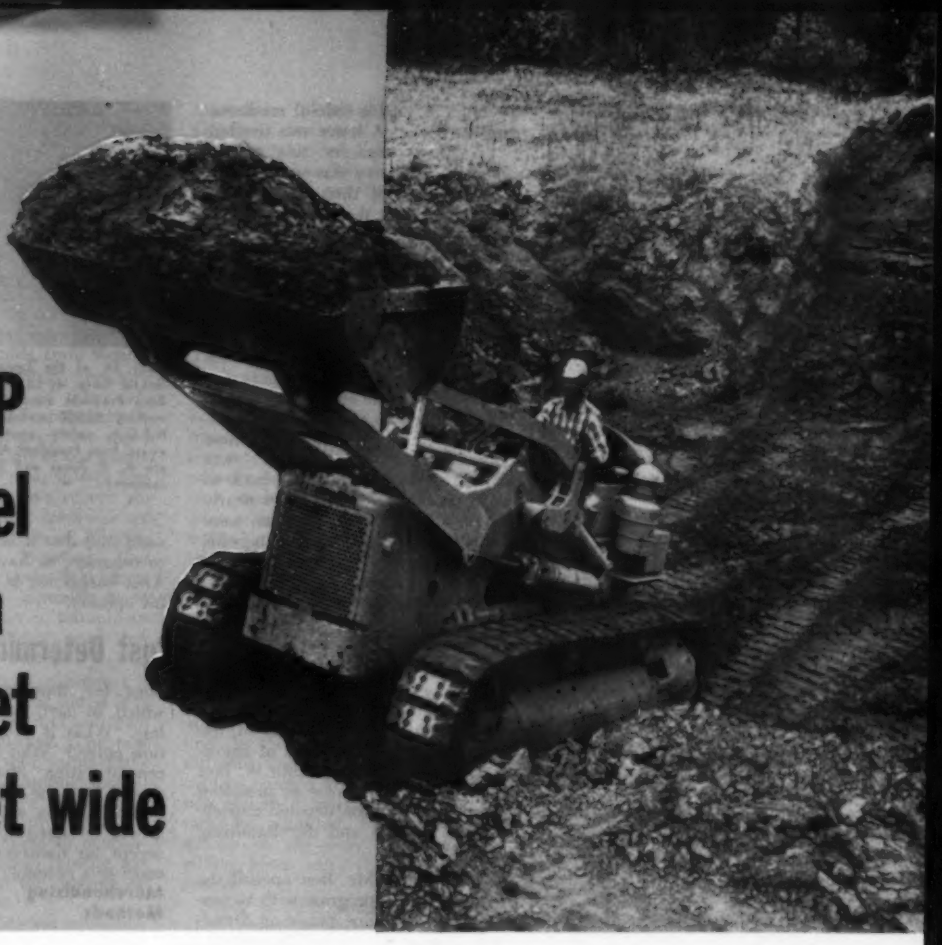

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The shovel frame and tractor are welded and bolted together. This is *one* unit – big, tough and completely Caterpillar built.

That bucket is 96 in. across, scoops up 2 cu. yd. easily, and has 66 HP behind its hard-faced cutting edge of high-carbon steel. There's a 35° automatic tip-back which holds the load in the bucket, and a 50° dump angle, with impact shaking, to get rid of even the stickiest material quickly and cleanly.

The bucket is wider than the widest part of the tractor. You can work close to walls, and cut sidewalls clean, with this shovel.

Those crawler tracks are extra long and designed especially for this unit. They're non-oscillating, too, for added stability and finer grading.

The Caterpillar-built hydraulic system lets the operator raise and dump at the same time and features an automatic kick-out. And the operator sits high and clear, with excellent visibility of the bucket's sides, back and corners. Yet the unit's over-all height (6 ft. 11 in.) is low enough for working in tight places and low overhead areas.

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Irving Warner Sr. (left) and Irving Warner Jr. (right) accepting the Rock Products Safety Trophy from President Albert R. Shiely of N.S.G.A. The Warner Company's Van Sciver plant had the best safety record among Class A plants—those working 100,000 or more man-hours annually—in the N.S.G.A. safety contest.

after prolonged discussions the matter was finally brought to arbitration with a third member from outside. Partly because the association retained the top law firm of Covington and Burling, and partly because the association had kept all notes and records of previous happenings, it finally won. Mr. Maywald urged all producers to keep all records as the unions do.

Nevertheless, in April, 1952, the union made new demands which were countered by a package offer from the association. Some progress was made until August 26, when the union struck one of the member companies. All plants immediately shut down again. The association again availed itself of the same top legal talent, and a federal mediator was called in. A letter was drafted telling the companies' side of the dispute and a copy was sent to each employee. Until then the workers had heard only the union's side of each controversy, and this letter turned out to be a wise move.

The union then worked on each company individually, trying to divide and conquer. Other steps were taken, including charges made to the press, which the association countered with large advertisements giving its side of the story. Finally the union agreed to recognize the association as the representative of these companies; a new contract was signed; and the men went back to work on September 22, after nearly a month of idleness. The men were given a number of added benefits which, however, were less than other employers had to give during the same period. In closing Mr. Maywald said that if labor has the right to organize, so have the employers. Area bargaining is the only way, in his opinion.

Plant 7A of the Lyman-Richey Sand and Gravel Corp. at La Platte, Nebr., won the Rock Products award for Class C—plants working 50,000 man-hours or less—in the N.S.G.A. safety contest. Accepting the award from President Albert R. Shiely (left) are A. J. Jones and L. C. Curtis of that company.

The Hearne, Tex., Plant of Gifford-Hill and Co., Inc., Dallas, won the Class B contest for plants of 50,000 to 100,000 man-hours in the N.S.G.A. safety contest. Accepting the Rock Products Safety Trophy from President Albert R. Shiely (center) are Frank Gifford, J. R. Whyte, Harold M. Lacey, J. C. Wilson, and J. R. Rutledge Hill of that company.

Merchandising and Cost Determination

As vice-president in charge of sales for Consolidated Rock Products Company, Los Angeles, one of the nation's leading producers of aggregates and concrete, Quentin W. Best proved an ideal choice as presiding officer for a session devoted entirely to sales policies and merchandising methods.

Sales Agreements Mr. Best opened the program with an outline paper on *Standard Clauses for Sales Agreements*. He urged that each member having a sales agreement forward a copy to association headquarters in Washington, D. C., for developing a composite booklet to serve as a standard guide. To set the pattern for the session, Mr. Best posed some questions for thought and discussion which, in part, included the following: What is your cement protection policy? Who is responsible for cement-testing charges, and who should foot the bill? What contingencies do you accept, or refuse to accept? What responsibility do you accept for damages by your equipment to a customer's property?

Merchandising Methods Last Christmas the Material Sales Company of Lilesville, N. C., which markets the output of the B. V. Hedrick sand and gravel plants, sent each customer a note and a little gift box containing a pair of cuff-links set with beautifully polished stones. The stones, the note explained, were selected from the Lilesville gravel stockpiles, were cut and polished, and set in sterling silver mountings. This unique remembrance gained a tremendously valuable good-will reaction—as well as a new use for gravel—according to Chas. E. Brady, sales director, whose paper on *Merchandising Sand and Gravel* proved extremely interesting and cited a number of other sales ideas developed by the concern.

Mr. Brady explained that the three Lilesville plants all produce sand and gravel, but each has quite a different product. They range all the way from quartzite gravel and sand, 99.8 percent pure SiO_2, to a chemically heterogeneous boulder deposit, and vary in size from ¾ to 6 in. in top size. The ideal salesman for these materials must be able to

discuss materials intelligently with railroad engineers, ready-mix producers, chemical users, and so on. He should know the physical and other characteristics of the materials, and the productive abilities of the plants to turn out a desired product. He must be able to answer any pertinent question about his materials or be in a position to provide the answer without much delay. "We try to select salesmen with engineering backgrounds, train them in the association laboratory, our state highway laboratory and other laboratories," Mr. Brady pointed out. "Our salesmen can draw for you a rough flow-sheet of any of our plants, and they know the relative tonnages and sizes produced. We survey our potential market, have cross-indexed our customers by type of business and geographical location. Our salesmen then go into the field where our materials are actually being used. They stay on a bituminous paving job, for instance, until they learn the entire procedure."

In Mr. Brady's book, a product is never allowed to be sold unless it is well suited to the job and will give the performance expected. This policy has paid off, he said, in his firm's excellent reputation among specification bodies who have utmost confidence in Lilesville products. Of course, efforts are made to concentrate on selling material moving too slowly, but never at the expense of customer satisfaction.

A central sales office has numerous advantages, he pointed out, not the least of which is the fact that it promotes a wide acquaintance with all customers.

Selling sand, which is automatically produced by the various plants in quantities as great as 30 to 40 carloads daily, sometimes becomes a problem. Mr. Brady said, however, that in order to assure steady volume, the sales staff concentrated on ready-mix and concrete-products manufacturers. Some of these plants were buying sand and doing their own blending with a natural fine bank sand. By plant blending, the company was able to produce a sand-gravel product which provided a better cement factor for the user and general customer satisfaction, at the same time moving considerable surplus material which might otherwise accumulate at the plants.

"A gravel-and-sand sales company must render a number of routine services," Mr. Brady pointed out. "Not the least of these is a systematic and thorough coverage we afford contractors with written quotations. We check the Associated General Contractors' weekly bulletin and quote every listed bidder on every job whose location is such that our materials can be economically supplied."

Other speakers at the session further developed the sales and merchandising theme, including Harold E. Shelby (Concrete Supply Co., Charlotte, N. C.) and Robert F. Porter (Harry T. Campbell Sons Corp., Towson, Md.) Mr. Shelby recited some of the pitfalls in selling concrete strictly on a strength basis, pointing out also the desirability of having an experienced, recognized concrete technician on the staff to adjust new mixtures, keep abreast of new technical developments, etc. Such a man, he declared, is of inestimable value in advising engineering and construction men of knowledge which can ease their tasks, speed up work, and save money for the customer . . . all good from the public relations viewpoint and conducive to building good will and future sales.

Mr. Porter's company produces and sells one of the most diversified lines in the business, covering 105 different and distinct items. Educating salesmen to know these products and their markets is a complex task, he admitted, but by relying strictly on the basic technique of selling, good results have been obtained.

Some of the points he stresses when choosing and training sales personnel include good background, good personal appearance, and a winning personality. "Educate this man so that he is familiar with all the products you produce, not merely those which he is to sell, and encourage him continuously. Sell him on the idea that he is selling for the best company of its kind"—this is the philosophy he expressed. Honesty in never allowing a Campbell product to be misrepresented, is another salient belief in the creed Mr. Porter has set up. He also firmly believes that a good salesman is worth a better-than-average salary, since he is a most important cog in the organization, perhaps *the most* important, he feels, since if you can't sell it, there is no use making it!

An important sales asset, Mr. Porter believes, and one often overlooked, is good telephone manners by all employees. They must be taught to be courteous and tactful at all times. No business can exist without a certain number of complaints, and the method by which these are handled often makes the difference between a satisfied customer and a dissatisfied former customer. In Mr. Porter's organization, even the plant superintendents are trained to sell just as the salesmen are trained to know production.

Cost Determination

Cost Determination in the Ready-Mix and Sand & Gravel Industries by John W. Murphy (Union Sand & Gravel Co., Spokane) was one of the most informative papers ever delivered before a convention of these industries. While Mr. Murphy went thoroughly into the subject, carefully analyzing the various systems which may be employed to advantage, he touched upon some other important points which impressed his listeners.

Without adequate cost records, Mr. Murphy defied any producer to know that the cost of operating his batching plant, or the digging end of his gravel plant might have increased two or three cents per cubic yard in October, 1952, over the same month in 1951. Two or three cents isn't much, he admitted, but multiplied by 10,000 or 20,000 yards it runs into a substantial figure. Even more important, maybe the actual increase is as high as 30 cents.

In keeping plant costs, he urged the maintenance of a perpetual cement inventory. Scales do develop trouble, he declared, citing the fact that a few years back his own company lost a substantial amount of cement due to scale failure. From the delivery tickets, calculations are made each day of the amount of bulk cement which *should* have gone into the concrete turned out. "Each of our plant operators has a scale showing the amount of cement in his silos, and checks are made constantly of the actual use of cement against the calculated use. If the inventory does not show up accurately—in other words, if the overage or shortage is too great, there is a thorough investigation. In addition, we check each cement scale weekly with our own test weights . . . all an integral part of our cost accounting system."

For those operators who do not stockpile entirely with belt conveyors, another point where costs can be incurred could be in stockpiling finished material with trucks, declared Mr. Murphy. Most producers would wish to keep these costs separate so as to determine how much their stockpiling cost actually is. Loading-out costs from stockpiles, too, can be accurately determined with a good cost system, a point of operating expense which is often overlooked and which can be costly.

Reports of State Associations

Harold G. (Hal) Feraud, executive secretary of the Southern California Rock Products Association and of the Southern California Ready Mixed Concrete Association, presided over the meeting of both associations at which were presented reports of various activities of several state associations of both industries. He stressed the growth in number and size of local organizations in these industries which do not conflict in their work or aims with the national organizations but which do many things a national group cannot possibly do. In things of national scope the national organizations take the lead, on local problems the local groups do the same; and on matters of joint interest they work together. Public relations, said Mr. Feraud, is of prime importance, and his group works hard at this. He cited as an example that members of his association are regularly entered in the Southern California truck safety contest conducted in co-operation with the National Safety Council. Last year, he said, the Azusa Sand & Gravel Company won the sweepstakes award.

Ohio *Representation of the Sand and Gravel and Ready Mixed Concrete Industries Before the Ohio Legislature* was described by Claude L. Clark, executive secretary of the Ohio Sand and Gravel Association and the Ohio Ready Mixed Concrete Association. He started by pointing out that one of the best things that any association ever did for any industry was the work of the sand and gravel association in helping to obtain percentage depletion for that industry. The manner in which the national association approached this matter was, he said, almost identical with the manner in which the Ohio associations approach most of their legislative efforts. Full advantage is taken of the legal and other talents of its members, and political contacts are also important.

State problems, said Mr. Clark, must of necessity be taken care of by producers of an industry within the state as laws differ so widely, even in adjoining states, as to make the problems too difficult for any national group to handle. The Ohio associations have been fortunate in having within their ranks men who can offer good counsel before legislative and other bodies and also provide real working contacts in the larger cities in the state. Good representation, he said, is especially important before legislative committees where the wrong man, even with good intentions, can undo the efforts of many others.

Mr. Clark divided the legislative efforts of the Ohio associations into four parts: (1) that which concerns directly the sand and gravel producer; (2) that which concerns directly the ready-mixed concrete producer; (3) general legislation of interest to both associations and business in general; (4) public revenues that influence business for both sand and gravel and ready-mixed concrete.

He stated that public revenues are probably the most important of these four categories as so much of the revenue pays for construction work, especially during periods when industrial activity is at a low level. Because of their importance industry should take an active part in supporting them. Back in 1923, when Mr. Clark was starting out with the old Ohio Crushed Stone Association, this group started agitation for the first 2-cent gas tax for maintenance and repair of highways, and this bill was passed in 1925 over the veto of the governor. The association and gravel producers did similar work on the motor vehicle license tax and on a later increase in the gas tax. In 1933 some of the gas tax revenue was diverted for schools and the association actively fought to have this returned. On December 4, 1947, this 1-cent diversion was restored in exactly the manner in which the association asked for it in resolutions drafted by William Edward Hole in 1935 and each two years thereafter. This means $20,000,000 more for roads every year. The association is now working to add another cent to the gas tax, and county commissioners and engineers and township trustees and clerks are co-operating. According to Mr. Clark, these associations also co-operate with public agencies in many ways, by encouraging bond issues, etc.

Mr. Clark said that some one must always be on the lookout for proposed amendments to existing state statutes. He cited instances where this had paid off for the industry. Some of these efforts were offensive, but others were also defensive when proposals were made which would be detrimental to the best interests of the industry. In recent years, he said, efforts in behalf of the ready-mix industry have been particularly heavy due to weight limits and other limitations. Active interest is taken in unemployment compensation and industrial insurance bills, gasoline and motor-vehicle tax and license bills, weight-distance taxes, etc. This work, said Mr. Clark, is not just a job for the association executive but for every industry member. It is this kind of co-operation which has paid dividends to the members of the Ohio associations, and it will do the same for producers in other states.

New York *Recent Problems of the Empire State Sand, Gravel and Ready Mix Association* was the title of an address by Edward J. Nunan (Buffalo Slag Co., Inc., Buffalo, N. Y.) He said that this is probably the youngest of the many state associations throughout the country and is a revival of the old Empire State Sand and Gravel Association, which had been dormant for years. In June, 1950, a number of producers decided that there was a definite need for such an association, and the necessary steps were taken. A meeting open to all producers in the state was held on July 11, 1950, and a committee was appointed which held area meetings throughout the state to sound out the opinions of producers. As a result it was decided to go ahead with the project and to include ready-mix producers. At an organization meeting held April 17, 1951, officers and directors were elected, a part-time executive secretary was hired, and dues were set for both active and associate members at a level low enough to get as many members as possible. Since that time, said Mr. Nunan, the organization has progressed at a very rapid rate; it now has a full-time executive secretary, and the dues have been raised to an adequate level. A member who is in both the sand and gravel and ready-mix industries pays dues for both. The association, he said, now has about 70 active members and 40 associate members and is actively trying to get more.

The first regular meeting of this association, according to Mr. Nunan, was held on October 23, 1951, and it was apparent that there was a vital need for such a group. Public works officials were dissatisfied with the quality of ready-mixed concrete obtainable in some areas and were on the verge of throwing it out of specifications or allowing it only under such restrictions that it would be almost impossible to deliver. A committee was immediately appointed to make an investigation, which showed that most of the trouble was located in a few districts. The

trouble, he said, was found to lie both in the quality of the concrete and the manner in which test cylinders were made and cured. Aggregates were not always properly inspected, and some operators were not complying with specifications. Where the state had adequate inspection and cylinders were properly made, there was no trouble with the resulting concrete.

Before the committee had an opportunity to complete its studies, Mr. Nunan continued, the Department of Public Works imposed restrictions on ready-mixed concrete which would soon have put many producers out of business. A conference was held, as a result of which a stay of execution was granted. Then at a meeting in May, 1952, the entire situation was thoroughly discussed by both sides, and as a result new specifications were issued in November, 1952, which followed pretty well the recommendations made by the committee. At a second meeting held recently some of the objectionable features were ironed out. Now, said Mr. Nunan, practically no concrete fails to meet the compressive strength requirements which proves that results are always good when both sides agree to cooperate.

With respect to the truck mileage or weight distance tax, Mr. Nunan stated that the association has had little success in its endeavors to obtain relief from this tax with which, he believes, many more states will soon be faced. The time to work against a bill of this kind, he said, is before it is passed; but in the New York case producers were led to believe that it would affect only long-distance haulers who do not pay even a gasoline tax in New York state.

Actually, practically every truck in the state is subject to this tax. Basically, he said, the tax is based on the mileage within the state and the maximum gross weight of the vehicular unit except when it is empty. These rates vary from $.006 for vehicles weighing from 18,000 to 20,000 lbs. up to $.024 per mile for vehicles having a gross weight of over 62,000 lbs. There are many ramifications to this law, Mr. Nunan added, and in addition to putting a heavy financial burden on all producers, it also creates grave injustices competitively for producers who happen to be unfortunately located with respect to the various zones on which charges are based.

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hicle within the state. These records must be preserved for a period of five years and must be kept open for inspection and audit upon request. The New York law has been upheld by the Court of Appeals and the Appellate Division of that state, and efforts are now being made to have its constitutionality decided by the United States Supreme Court.

Mr. Nunan also told what the association did to correct an injustice to operators of truck mixers in the method of determining motor vehicle license fees through a weight chart which specified the gross weight under which a truck must be licensed and which was based on the unladen weight of the vehicle and the gross load which it could carry. As truck mixers necessarily have a very high unladen weight in comparison to the load they can carry, their taxes were excessive. The association asked for a hearing before the Bureau of Motor Vehicles as a result of which such trucks now pay on the basis of the unladen weight of the truck plus the weight of the concrete the operator expects to carry; recently this was changed to the largest load the truck can carry.

These, said Mr. Nunan, are only a few of the many things the association has already done for producers in New York state, both members and non-members. Just the fact that the producers are organized, he said, gets them consideration in many places which they would not otherwise receive. In closing, he said that none of the efforts of this state association have in any way conflicted with the work of the national associations; in fact, they have worked together on most problems.

Midwest *Administration of Short Courses for the Personnel of Member Companies* was described by R. E. Hutchins, executive secretary of the Midwest Ready-Mixed Concrete Association, Terre Haute, Ind. Mr. Hutchins said that this association originally devoted all its energies to the problems of the owner and manager, but that five years ago it was decided to institute a short course in the fundamentals of concrete, aimed at instructing employees on this subject. Recognizing that there would be some subjects more of interest to the owner and manager and others for the employee, the work of the short courses was divided into two main divisions. The one for employees was called a "school for operators", and was intended to explain to him the reasons for the instructions he follows as a part of his job. It soon became apparent that, while highly intelligent, many of these men had not even a high school education and hesitated to expose the fact that they could not understand the technical terms used. As a result, the vocabulary used in explaining things is now scaled to fit the hearers, and these schools have been highly successful.

There is still some criticism from the men that the speakers from outside go over the heads of their hearers and that the subjects in successive schools are repetitious. These have been met by informing speakers ahead of time as to the kind of audience they will have and by bringing into the school subjects of particular interest to the office personnel, to mixer truck drivers, etc. In the course of five years, said Mr. Hutchins, there is bound to be some repetition of subjects, and there should be on some important things like water-cement ratio, the importance of delivering on time, admixture, test methods, etc.

According to Mr. Hutchins, the attendance at these schools has increased from 40 the first year to 90 the last. It has been found advantageous to hold these schools in cooperation with an engineering college where adequate facilities can be found, and to hold them between Christmas and New Year's, when the colleges are closed and can best accommodate them.

The course aimed at management, Mr. Hutchins stated, is usually for two days, and it is built around the annual meeting of the association. In this course the latitude in subjects is wider, and outstanding speakers can be obtained. This year at the annual meeting and short course at the Drake Hotel in Chicago on March 30 and 31 the principal theme will be the arrangement and equipment of central mix and transit plants, both large and small. A round table called "Stump the Experts" is a popular feature.

California *Representation of Area Groups in the Negotiation and Administration of Agreements with Labor Unions* was the subject discussed by E. R. Booker, secretary of the Rock, Sand and Gravel Producers Association of Northern California and the Northern California Ready Mixed Concrete and Materials Association. The vast area covered by these two associations is bounded on the south by the Kern County line which is between Fresno and Bakersfield and takes in all of the state north of that line. The aggregate association, he said, got its start early in the 1930's during N.R.A. days, but even before that producers acted as a group in dealing with labor negotiations. Membership is confined to commercial producers, and there are no associate members. The business of the association is conducted by a board of directors which delegates a substantial part of its function to an executive committee of five. Dues are based on annual production in tons; they vary with the size of the budget adopted by the board.

The prime function of the association, said Mr. Booker, is that of caring for the labor negotiations of its members on an area-wide basis, but care is also taken to see that workers receive adequate wages and have good working conditions. This association negotiates only one contract, covering all of Northern California. That contract is with five unions: the Operating Engineers; Laborers; Teamsters; Machinists; and Blacksmiths. The general terms governing working conditions are stated in the contract, to which are attached five supplements. Each year new supplements are drawn specifying the hourly wage rates applicable to the particular craft; and amendments to the master contract may also be contained in them. The master agreement and the supplements are signed not by the employers but by the officers of the association in behalf of its members.

Each year a labor negotiating committee is appointed which acts for the association on all labor negotiations and also acts as a grievance committee in case disputes arise as to the meaning or interpretation of the contract. Neither the association nor the secretary become involved in any dispute until after every means has been exhausted to settle that dispute on the local company level. Arbitration is handled by a committee of five management and five union representatives which has to do only with the meaning and interpretation of the contract.

The Northern California Ready Mixed Concrete Assn., said Mr. Booker, confines its activities entirely to representing groups of employers within relatively small areas, at present only in those areas adjacent to the San Francisco Bay. In the other areas the employers handle their own negotiations but depend on the association to furnish information in connection with wages and working conditions. Only on the request of

the majority of members in an area will the association enter into any negotiations in that area. Its membership is made up of employers who are in the ready-mix business and/or who are engaged in the sale of the related dry materials, as in case union pressure reaches the point of work stoppage, it seems important that all elements of employer competition be immediately concerned.

This association, said Mr. Booker, does not have a negotiating committee as such, this function being a duty of the executive committee, which recommends a course of action to the local area. The members in each area select their own labor negotiating committees, which usually have limited powers and report back to the members before positive action is taken. The association, and sometimes the secretary, is called in on occasion to negotiate for individual members or groups. Mr. Booker explained the reasons for the different methods under which these two associations operate, which include locations, number of operations, lengths of average hauls, perishability of product, possibility of storage, etc. He also told what these groups have been doing with respect to health and welfare plans demanded by various unions, for which negotiations are now under way. From experience he advised other associations to initiate their own plans with benefits comparable to the union plans.

Technical and Operating Developments

Heavy-Media Flotation An outstanding development in the gravel industry was described by L. P. Struble Jr., general manager of Keystone Division, Dravo Corporation, Pittsburgh, in a paper entitled *Production of Gravel by the Heavy-Media Flotation Process.* This use of flotation for the commercial processing of river gravels is the first of its kind in the United States. Mr. Struble stated that this H.M.S. plant, which is still in the experimental stage, was placed in operation in April, 1952. Through use of magnetite or ferrosilicon, a media specific gravity averaging 2.4 is maintained, which successfully separates coal, shale, wood, soft sandstone, and other deleterious particles from the gravel.

For a more detailed account of the entire operation, the reader is referred to a feature article appearing in this issue written by W. L. Price, also of the Keystone Division.

An important paper entitled *Effect of Heavy-Media Processing on Quality of Gravel* was given by Stanton Walker and D. L. Bloem, director and assistant director of engineering, respectively, of the N.S.G.A. The speakers reported on recent investigations, supported jointly by the N.S.G.A. and N.R.M.C.A., which were conducted in the association's research laboratory at the University of Maryland. The paper dealt with physical tests of gravels processed by the heavy-media method and with freezing-and-thawing tests of concrete made with these same gravels.

At the outset it was pointed out that heavy-media processing for the concentration of ores had been widely used in the mining industry during the last 15 years, but that it was only recently that attention had been directed to its application in the gravel industry. That had resulted from increasingly strict requirements on aggregates, coupled with the necessity for meeting an increasing demand from a decreasing number of high-quality deposits, they stated.

The paper brought out that the improvement of gravel by heavy-media processing depends on the deleterious impurities' being of lower density than the parent material. The gravel is discharged onto a fluid medium having a specific gravity higher than the materials which are to be removed, but lower than those which are to be retained. The materials with low specific gravity float and are discarded. The "heavy liquid" consists of a suspension in water of a finely ground, high specific gravity material such as magnetite, galena, or ferrosilicon. The specific gravity of the suspension can be controlled accurately by regulating the amount of mineral which is suspended.

According to the speakers, the first use of heavy-media processing for improvement of gravel involved the construction of concrete runways for an airport near Rivers, Manitoba, Canada. See PIT AND QUARRY, Vol. 42, No. 6, December 1949, p. 60. The contractor was faced with the necessity of paying high freight rates to import suitable aggregates if he could not reduce the shale and shaly sandstone content of local materials to an acceptable amount. By means of the heavy-media process, he was able to remove the more objectionable material and to use the local deposit at a considerable saving.

This demonstration of the potentialities of heavy-media processing for improving certain aggregates aroused the interest of a number of gravel producers whose products had, on occasion, been rejected because of failure to meet quality standards. This resulted in the investigations at the university.

The tests reported on dealt with gravel samples furnished by two member companies, the speakers stated. Five independent studies were made altogether, two in the case of one company and three for the other. One study involved tests of untreated gravel and gravel from the same source processed by means of heavy media of various specific gravities in the pilot plant of the American Cyanamid Company, Stamford, Conn. Comparisons were made of the effects of the various degrees of heavy media treatment on the resistance to freezing and thawing of both non-air-entraining and air-entraining concretes. The second group of tests was made to determine the feasibility of blending crushed float material, resulting from the heavy-media processing, with natural sand for use as fine aggregate in concrete. Comparisons of freezing-and-thawing resistance were made for both non-air-entraining and air-entraining concretes using blends of crushed float material and natural sand in the proportions 0 to 100, 10 to 90 and 25 to 75 percent.

A third group of tests, preliminary in nature, involved comparisons between untreated gravel and gravel treated in the association's laboratory by flotation on a heavy liquid consisting of a mixture of carbon tetrachloride and acetylene tetrabromide. Freezing and thawing tests included both non-air-entraining and air-entraining concrete.

The next group of tests was somewhat more comprehensivee, dealing with untreated gravel and gravel which had been processed in media of various specific gravities at the pilot plant of the American Cyanamid Company. Again, tests were made on both types of concrete.

In the final test comparisons were made of freezing and thawing resistance of gravel treated first in a medium of high specific gravity and then in one of low specific gravity. In this case, because of the limited size of the samples, only air-entraining concrete was used.

After presenting the details of the five studies, the speakers stated that while the data were neither comprehensive nor conclusive, they provide some indications of the potential improvement in coarse aggregate quality which may result from heavy-media separation. These were summarized as follows:

"1. Heavy media were very efficient in removing lightweight constituents as evidenced by progressive increases in specific gravity of sink materials as specific gravity of the medium was increased.

"2. The materials removed by flotation were of inferior quality as indicated by their high absorptions and the presence of much larger quantities of deleterious particles (such as chert, limonitic sandstone, and soft pieces) than were found in the parent materials.

"3. As would be expected from (2) above, the quantity of deleterious particles in the sink materials was lower than in the parent material. However, heavy-media separation was not successful in removing all of the delcterious material from the aggregates.

"4. The sulphate soundness loss of one of the aggregates tested was materially reduced by treatment in heavy-media.

"5. Freezing and thawing resistance of concrete was appreciably, and in some cases greatly, improved by treatment of the coarse aggregate in heavy media of the higher specific gravities. In general, the improvement became progressively less as the density of separating medium was decreased.

"6. For the single case studied, the use of crushed float material from heavy-media treatment to supplement the fines in concrete sand was not detrimental to freezing and thawing resistance of the concrete."

In conclusion, they stated that these findings apply directly only to the materials tested. They made it clear that heavy-media treatment is not applicable to all aggregates nor will it remove all types of deleterious substances. Nevertheless, they added that the process offers considerable promise for the beneficiation of specific deposits where strict limitations on quality must be met for severe conditions of concrete exposure.

Specifications Those who have had experience with the rigid demands of the Corps of Engineers specifications for aggregates and concrete had a compelling interest in the paper on the subject presented by J. R. Gilbert, concrete-control chief of the Corps.

He explained that the policies, as embodied in the *Standard Practice* manual and in two concrete-guide specifications have been developed over many years and are based on engineering research, design analyses, practical construction criteria, and actual cost considerations. Recent changes, he declared, are a part of a continuing attempt to provide better structures at less cost. There are no sharp diversions from previous policies. Some requirements have been modified to conform with latest developments while others have been eliminated where experience has shown them to be economically unjustified or technically unsound. Provisions have been made for new materials and new methods, and there has been an effort made to clarify the intent of the provisions.

"The suitability of aggregates is not defined in the specifications by conventional limits for tests such as sulphate soundness, absorption, abrasion loss, or allowable percentages of deleterious material," Mr. Gilbert emphasized. "The use of limits of the conventional type for the control of concrete aggregates is both impracticable and unreliable. For this reason, the determination of the suitability of aggregates in advance of construction has been adopted as the only satisfactory means of assuring us that aggregates of acceptable quality will be used on our work."

Within the last seven years, the Corps has sampled and tested material from thousands of aggregate sources, with the result that a large volume of data has accumulated for all types of aggregates. In order to avoid unnecessary sampling and testing procedures for future investigations, Mr. Gilbert said the data has been published in 10 volumes which have been distributed to each Corps of Engineers field office, where they may be studied and consulted.

Since the quality of aggregates has already been determined, only the technical steps pertaining to gradation, uniformity, and particle shape need be considered when a project is undertaken. Such sampling is to be done under a new method, CRD-C100, in lieu of the former federal specification SS-A-281a.

Under the current specifications, Mr. Gilbert said that all former demands relative to handling, storage, and processing, such as the use of rock ladders, stockpile sizes, or special equipment demands, have been deleted. The contractor or supplier may exercise his own ingenuity in designing or operating his processing plant to produce the desired product. Fine and coarse aggregates will be checked for compliance with specification requirements "as delivered to the mixer." Gradation requirements for coarse aggregates have not been changed except that a more open gradation has been included, while gradation for fine aggregates will vary with the type of work.

According to the speaker, where a large volume of low-cement-factor concrete is to be used, it is economically sound to specify close control of fine-aggregate gradation and uniformity. For other work, relatively high-cement-factor concrete is usually specified, and in this case only moderate control is specified, thereby effecting a saving in aggregate-production costs. While the variation in average fineness modulus permitted has been retained at 0.10 on low-cement-factor concrete, it has been increased to 0.15 for most work.

A particle-shape requirement has been added to the specifications, and the number of flat and elongated particles permitted in any separated size of coarse aggregate has now been limited to 25 percent.

Ready-mixed concrete may be used at the discretion of the Corps, but the plant and methods will first be the object of scrutiny, the speaker indicated. In this connection, he discussed the Corps' revised concept of batch-plant requirements. Formerly, individual weigh-batcher plants were specified, because of the ease in controlling proportions and because of the facility for ribboning or blending the materials entering the mixer to increase mixing efficiency. Future work will, however, permit the use of cumulative batch plants, provided that the maximum coarse-aggregate size does not exceed 1½ in. if separated on the ¾-in. screen, or 2 in. if separated on the 1-in. screen. The Corps of Engineers is at present contemplating a specification of its own, Mr. Gilbert revealed, which will cover the use of truck-mixers. Until this is ready, it will continue to be governed by applicable portions of ASTM Method C94.

Open Forum At one of the two sessions preceding the field trip an open forum was held on *Production and Specification Problems,* led by the following Californians: Robert S. Barneyback (Henry J. Kaiser Co., Oakland); George F. Hampton (Pacific Coast Aggregates, Inc., San Francisco); Earl Withycombe (California Highway Department); and Bruce Woolpert (Granite Rock Co., Watsonville). Actually, according to E. K. Davison (J. K. Davison and Bros., Pittsburgh, Pa.), who presided at this session, this forum was a prelude to the field trip.

Mr. Barneyback gave a brief description of each of the two plants to be visited, pointing out features of unusual interest. Mr. Hampton described the deposits in Livermore Valley, in which these plants operate. These, he said, are low in sand, particularly the 50- to 100-mesh fraction. He also described the method used of grinding excess pea gravel into fines to make up this deficiency.

Mr. Withycombe described the standard specifications for California which were written in 1949. These, he said, are now being revised, and the local associations have been asked to co-operate in helping to arrive at specifications which will have the necessary qualities and yet be possible to produce. In his opinion all specifying bodies should ask for similar co-operation when changing specifications or writing new ones.

Mr. Woolpert gave a brief comparison of conditions in the sand-and-gravel and ready-mix industries in Los Angeles and San Francisco and the growing competition from lightweight aggregates. Of particular interest was the requirement that concrete for pavements must be weighed on automatic scales, of which a variety of types are available.

Role of Inspector *Inspection of Aggregates and Ready Mixed Concrete* was the title of an address given by J. W. Kelley, professor of civil engineering, University of California, Berkeley. A former quality control engineer of the P.C.A., Professor Kelley pointed out that although some of the old problems of inspection still exist, the major problem today centers around the human element. He stated that in spite of the great technological advancements in the aggregates and ready-mixed concrete fields, there is still a need for some one to check materials and processes.

In discussing the role of inspectors, the speaker stated that they should control uniformity of concrete materials, both as to manufacture and use in concrete; that they should constantly inspect stockpiles and see that segregation is avoided while the piles are being built; and that they should check the reliability of aggregates coming from various sources.

Professor Kelley felt that the inspector could do a better job by keeping careful records of all samples taken, by being certain that samples are representative, and by following standard testing procedures, particularly with reference to sieve analysis. Regarding this latter point, the speaker urged that greater use be made of the American Concrete Institute's inspection manual.

Because of the inspector's important role, Professor Kelley urged that producers help make the job of inspector an honorable, life-time one.

Safety, Zoning, Pollution, Two-Way Radio, Etc.

Safety Awards The final session of the sand-and-gravel group was in the nature of an informal gathering in the Terrace Room for discussions of safety policies, zoning, and pollution problems within the industry.

Winners of the Bureau of Mines 1951 safety contest were announced and trophies, provided by *Rock Products*, were presented to the Class A, B, and C winners. These were, respectively, the Van Sciver plant of the Warner Company, Philadelphia; the Hudson plant of Gifford-Hill & Company, Inc., Dallas; and Plant 7-A of the Lyman-Richey Sand & Gravel Corporation, Omaha. Irving Warner Jr. accepted for his company, J. Rutledge Hill for Gifford-Hill, while A. P. Jones (superintendent) and L. C. Curtis (vice-president) both came forward to receive the plaque for the Omaha concern.

Twenty-seven other plants also were certificate winners for their attainment of safe operating records during the year.

Zoning and Stream Pollution Better public relations and closer cooperation with municipal governments were deemed necessary steps by Howard W. Jordan (Metropolitan Sand & Gravel Corporation, Port Washington, N. Y.) in overcoming zoning difficulties being experienced so universally in recent years by many producers. Growing suburban populations continue to engulf established plants and deposits, with the result that the newcomers in the areas involved, numerically at least, are often able to exert great pressure to halt future expansion plans of producing concerns.

Mr. Jordan cited the case of a sand-and-gravel operator (not his company) which for years has owned several hundred square miles of good deposits on Long Island. Its hopes of exploiting these reserves in future years have been largely dashed by zoning decrees which have reduced the areas available for excavation to a small fraction of the total holdings. In retaining its right to work even these remaining deposits, the company involved participated in scores of public hearings, fought injunction proceedings, and finally agreed to give up the greater areas of its lands in exchange for the right to develop the remainder. In addition, it posted a $500,000 performance bond to guarantee that it would live up to all the ramifications of the agreement, which also included stipulations calling for extensive landscaping, filling and leveling worked-out pits, and surfacing them with top-soil. Additionally, the concern involved agreed under pressure to cease all operations in the area 12 years hence!

President Shiely told of his company's experience with respect to zoning laws. Many years ago it acquired a deposit in a remote, nonzoned area some distance from St. Paul. After operating about 10 years, it purchased adjoining lands just about the time the county passed zoning ordinances of a restrictive nature as far as excavating and processing gravel were concerned. Deciding to adopt a cooperative attitude, company officials made numerous concessions and gained the support of 90 percent of the people within a 1-mile radius of the plant, and; as a result, they felt pretty optimistic as to the outcome of its application for a zone exception. However, when the matter was called up for hearing, hordes of property-owners from a new subdivision many miles from the plant stormed the meeting, and the decision went against the company.

Happily, however, the problem was resolved another way: friendlier, near-by residents joined with the company in petitioning and winning the right to incorporate their own village, taking into the area involved in the new town-site the deposits involved.

Problems of stream pollution continue to harass the industry, particularly for those concerns which, like his own, dredge material from the rivers, stated E. K. Davison (J. K. Davison & Bro., Pittsburgh) in a talk reviewing the situation as it presently exists. While sand-and-gravel producers actually do not pollute streams in normal operations and in the accepted sense of the meaning of "pollution", they do create considerable turbidity in returning silt and extreme fines, a condition to which sportsmens' groups principally object. Most land-based operators can meet the objections quite readily and economically with a settling pond or

two. Not so with the dredge operators, however. Mr. Davison warned that these floating plants face a problem that looms increasingly grave in the near future if proposed unrealistic legislation is enacted into law.

Every state except three in the West now have laws regulating stream polution to some degree, most of them requiring at least primary treatment of all wastes, the speaker reported.

Two-Way Radio Communication Two-way radio communication between plants, offices, vehicles, and operating equipment proved to be a subject of considerable interest, despite the fact that the Federal Communications Commission is making it increasingly difficult to establish and continue such facilities.

This was brought out in the discussion which followed a paper on the subject by Frank B. Hagan (Graham Bros. Inc., Los Angeles). The operations of Graham Bros. are spread over a 50-mi. radius, including pits, quarries, and processing plants on Catalina Island off the West Coast. Mr. Hagan described some of the advantages it had gained for his company.

Licensed in August, 1947, to an exclusive frequency of 154.49 megacycles for an experimental 2-year period, the company petitioned for a renewal of its license at expiration. This was first denied, but later, after the company had been off the air for more than a year, renewal was granted. Eligibility for the operation of such facilities, Mr. Hagan explained has been based on whether or not a company's primary business function has been the production of materials rather than their delivery. In the case of Graham Bros. the far-flung nature of its operations, the lack of dependable telephone service, and the perishability of its product, ready-mixed concrete, seem to have been the arguments which enabled it eventually to obtain a license renewal.

Describing his company's set-up, Mr. Hagan told of the building of its main transmitter in the foothills 5 miles from its main offices in El Monte, Calif., and the equipping of each plant, yard, and 23 mobile units (none of which were in "delivery service") with two-way radio service. Advantages cited were the valuable time saved in instant communication when operating or technical advice was sought and given, changes in the design of mixtures, and diversion of trucks from one job to another in a hurry when such need arose. Co-ordination of operations has been speeded up remarkably, he declared, and fewer men are needed.

While Mr. Hagan reported that maintenance of the units ran as high as $25 per month, in the discussion which followed, Ward W. Anderson (Albuquerque Gravel Products Co.) said his company had been operating 30 mobile units at a cost of about $3 per month. He explained this, however, by saying that Eugene Sundt, general manager of his company, had an intense hobby interest in things electronic and that he undertook to keep the units in good operating condition in his spare hours without charge-off for the time involved!

Other producers reporting experience with industrial radio included Irving Warner Jr. (Warner Co., Philadelphia); W. J. Hicklin Jr. (Capitol Concrete Co., Jacksonville, Fla.); John Fisher, Phoenix, Ariz.; and Payne Kibbe (Utah Sand & Gravel Products, Salt Lake City). Mr. Warner reported that his company has units installed on dredges, locomotives, and cranes, in addition to more conventional locations.

Ladies' Entertainment The special entertainment program for the ladies took full advantage of the many attractions offered by this country's most scenic and cosmopolitan city and its surrounding areas. On Monday noon, February 24, the ladies were guests of the two Northern California associations at a luncheon. This was followed by a talk entitled *I Love San Francisco,* which described many of the local attractions they were to see. Later they were taken on a tour of San Francisco, visiting the following: Mission Dolores; Golden Gate Park with its exquisite Japanese Tea Garden; Cliff House, overlooking Seal Rocks and the Pacific Ocean; Chinatown, the largest Oriental settlement outside Asia; Fisherman's Wharf; and other points of interest.

Many of the ladies attended the joint luncheon of the associations Tuesday noon. They were rewarded by an address by Louis B. Lundborg, vice-president of the Bank of America, who reviewed the colorful history of San Francisco and gave many interesting facts about its present.

On Wednesday the ladies had their choice of three attractive sightseeing tours while their husbands were away on the plant field trip. One of these took them south to the beautiful Stanford University campus. There lunch was served at the Allied Arts Guild, and ample time was allowed later for visits to the many shops featuring native California crafts before the return to San Francisco. Another trip was across the San Francisco-Oakland Bay Bridge to Oakland with its beautiful Lake Merritt and Skyline Drive. After luncheon at the Claremont Hotel a tour was made of the University of California campus. The third option was a trip across the Golden Gate Bridge to Muir Woods National Monument through acres of giant redwood trees, some of which are over 2,000 years old.

On Thursday the ladies were again guests of the two Northern California Associations at a breakfast, where they were given a briefing on the outstanding San Francisco shops. Hostesses then escorted them on tours to the stores.

Special Features The added attractions which make these between-show conventions so attractive to association members and their wives and families began with a luxurious "Convention Special Train" which took 125 people, including 58 producers and their wives, by a scenic route to San Francisco. This train originated in Chicago, where it was boarded by most of the passengers; others were picked up en route. Leaving Chicago at noon, Tuesday, February 17, this train made its first major stop at the Grand Canyon, arriving on Thursday morning. The entire day was spent in seeing the many scenic wonders of this area. Early on Friday afternoon the train arrived at Merced, Calif., where buses were boarded for the trip into Yosemite National Park. All day Saturday was spent in seeing the sights there, including the Mariposa Grove of Big Trees. On Sunday morning buses took them back to Merced and the trip was resumed, the party arriving in San Francisco in the afternoon.

On the return trip the train left San Francisco on Thursday evening, February 26, arriving in Los Angeles on Friday morning. That day and Saturday were spent in seeing the many attractions of that area, including movie studios. On Sunday morning a side trip was made to San Diego and the del Coronado Hotel at famous Coronado Beach, where the visitors stayed through Monday

(*Continued on page 114.*)

Iowa Agricultural Limestone Association Holds Another Well Planned Convention

another ON THE SPOT report

A NEW attendance record was set at the eighth annual convention of Iowa Agricultural Limestone Association, Inc., held at the Savery Hotel, Des Moines, Iowa, on March 4

By FRANK J. CORNYN

and 5. More than 300 limestone producers, associate members, and their wives, along with distinguished guests, were present. The I.A.L.A. deserves a great deal of credit, when we realize that at the first meeting in 1945 there were only 19 members, and that today it is said to be the largest state association of its kind in number of members.

The convention got under way on March 4, with a directors meeting and luncheon, followed by various committee meetings. Starting at 7:00 p.m. the associate members held their first reception, welcoming the limestone producers and their wives to the convention; and needless to say, it wasn't long before everyone became pretty well acquainted and was having a grand time.

Floyd H. Millen, (Valley Limestone and Gravel, Inc., Farmington, Iowa), president of the association, gave the welcoming address, which officially opened the general meeting on Thursday, March 5. He thanked the members for their support during his term of office and urged all of them to continue their efforts to make the association stronger and more successful. A beautiful technicolor picture entitled *A Day in Court* was shown, illustrating a thought-provoking human-interest story dealing with the important subject of safety. The moving picture evoked many hearty laughs, besides having its serious side. This picture was presented through the courtesy of the International Harvester Company.

Clint A. Allen, executive secretary of I.A.L.A., gave his annual report and spoke briefly of his many activities during the last year. K. K. Kinsey (Concrete Materials and Construction Co., Cedar Rapids, Iowa), the 1953 president of National Agricultural Limestone Institute, told what took place at the second annual convention of the N.A.L.I., held in Washington, D. C. He also stressed that every member should help himself, as well as the industry, by attending the third annual convention of N.A.L.I., to be held in Chicago next February. Mr. Kinsey concluded his talk by giving praise to Horace C. Krause (Columbia Quarry Co., St. Louis), who was re-elected president of National Crushed Stone Association, and Robert M. Koch, executive secretary of National Agricultural Limestone Institute for their tireless efforts for percentage depletion. Incidentally, *two* worthy presidents were installed at Washington, D. C., on January 19 and 20—D. Eisenhower and K. Kinsey.

The reports of the auditing, resolutions, and nominating committees were made. The new officers are: president, E. H. Matthias (Waterloo Dredging Co., Waterloo, Iowa); vice-president, Melvin E. Raid (Raid Bros. Construction Co., Denmark, Iowa); executive secretary and treasurer, Clint Allen (re-elected). Three new directors were selected: K. R. Farquhar (Farquhar

E. H. Matthias (Waterloo Dredging Company, Waterloo, Iowa), newly-elected Iowa A.L.A. president, taking over the rostrum.

Clint Allen, energetic executive secretary of Iowa A.L.A., with Lee R. Paige, Grundy Center, Iowa; Paul Templeman, Fayette, Iowa; and Senator Don Bellman, Indianola, Iowa.

New officers and directors of the association. Standing: E. H. Matthias, president; Melvin E. Raid (Raid Bros. Construction Company, Denmark, Iowa), vice-president. Seated: K. R. Farquhar (Farquhar Quarries, Cedar Rapids, Iowa), J. F. Pavlovec (Pavlovec Rock Company, Calmar, Iowa), and Roy Potthoff (Kaser Construction Company, West Des Moines), directors.

Quarries, Cedar Rapids, Iowa), J. F. Pavlovec (Pavlovec Rock Co., Calmar, Iowa), and Roy Potthoff (Kaser Construction Co., West Des Moines, Iowa).

Bob Koch, executive secretary of N.A.L.I., talked on important matters concerning the Agricultural Conservation Program and its immediate future under the new administration. He mentioned that a great deal of progress has been made in the last four or five years and emphasized that efforts must be continued vigorously. Every producer should see to it that the limestone program is brought to the attention of his congressman. Mr. Koch further stated that he is optimistic about the future and believes that appropriations will remain about the same. He is contacting senators from all states and is getting favorable reactions. The Soil Conservation Service, Production and Marketing Administration, and Agricultural Conservation Program, he said, should be put into one group to pool their efforts.

The list of distinguished speakers at the popular luncheon was headed by Iowa's governor, William S. Beardsley, and Mayor Allan W. Denny of Des Moines, who were guests of honor. The official welcome of the city was extended by Mayor Denny. The importance and value of the agricultural limestone industry to agriculture and the state were stressed by Governor Beardsley. Garvin C. Mattheisen, senior student at Iowa State College and recipient of the association's scholarship award for the current year, was also introduced. His acknowledgement of the award and its value to him was given with the utmost sincerity, making it apparent that the selection for the scholarship had been intelligently made.

Tom Collins of Kansas City, Missouri, was the main speaker at the luncheon, and everyone present will undoubtedly agree that Mr. Collins proved himself a top-flight humorist. There was a serious side to his subject—*Who, Me?*—that actually was food for thought. He sagely pointed out that there probably are some farmers who do not know of the many advantages of using lime, and that limestone producers cannot afford to sit back and let the farmer come to them. Producers must get out and carry the story of lime and soil conservation to the farmer. A persistent advertising and promotional campaign is essential to selling lime or any other product.

Ernie H. Matthias, the new president, presided at the general meet-

This very decorative I.A.L.A. floral display would have to be reproduced in its original colors to be fully appreciated.

K. K. Kinsey (Concrete Materials and Construction Company, Cedar Rapids, Iowa), president of N.A.L.I., giving a resume of events that took place at the national convention.

Bob Koch, executive secretary of N.A.L.I., explaining important matters pertaining to the aglime program, and Floyd Millen, retiring president of Iowa A.L.A.

Some of the charming couples which were much in evidence: Mr. and Mrs. Harold Cessford; Dick Hedreen of Dupont de Nemours and Company; Mr. and Mrs. Bob Weaver; Mr. and Mrs. George Gibson; and Mr. and Mrs. Don Eggspuehler. The gentlemen, with the exception of Mr. Hedreen, all represent the Weaver Construction Company, Alden, Iowa.

Left: Mr. and Mrs. Harry Wendler (Highway Equipment Company, Cedar Rapids, Iowa) and Mr. and Mrs. Enno Burrack (Aglime and Rock, Strawberry Point, Iowa).

Right: Dewey Cornell (program director of the Iowa P.M.A., Des Moines), one of the convention speakers, and Don Kaser (Kaser Construction Company, West Des Moines).

ings in the afternoon and gave a brief welcoming address. William B. Mooney, city attorney of Waverly, Iowa, who appeared through the persuasion of Vern Schield (Schield Bantam Company, Waverly, Iowa), former director of I.A.L.A., addressed the meeting on the subject *Communism in America*. Mr. Mooney is well qualified to speak on the subject as he is a former F.B.I. agent. He commenced by saying that no secret government information would be disclosed, yet his talk was highly interesting and enlightening. The main impressions that his hearers received were that Communism must be combated wherever it is encountered, and second, that very few seem to realize how fortunate we are to be living in the U.S.A.

Iowa Business—Forward or Backward—was the title of an address by Bob Burlingame, executive secretary of the Iowa Employers Association, who spoke authoratively on this subject. In appraising the Iowa business situation today, he stated that we must begin in Russia—in Moscow. Decisions made behind the walls of the Kremlin are translated into actions throughout the Soviet empire. Those actions produce reactions throughout the Western World, of which the United States is the central treasury, central arsenal, and central defense base. As long as this situation exists, every aspect of American economic life is bound by invisible but strong ties to the ambitions of a dozen faceless communist leaders. Mr. Burlingame went on to say that surgery on the government spending estimates is going to be extremely painful if not impossible, and that hope for an early tax reduction is wishful thinking.

The other side of the coin is that increased international tension, with an attendant military buildup, could once more act as a "shot in the arm" to the domestic economy. This is not the way we like to maintain business activity, but it may be a by-product of Stalin's death.

The speaker then discussed at length the problem of labor relations, stating that we have both a vested interest and a public responsibility for preserving and strengthening the Taft-Hartley law, which has been a start toward correcting the abuses of union power that developed under the old Wagner act. There are three principal changes needed in the Taft-Hartley law, in Mr. Burlingame's opinion: a nationwide ban on compulsory union membership, a curb on industry-wide strikes, and the extension of the antitrust laws to labor unions. Dewey Cornell, highly-regarded program director of the State Production and Marketing Administration, was the last speaker for the afternoon. His very informative address was on the subject *Obstacles to Conservation*. He mentioned that there will be 30,000,000 to 40,000,000 more people to feed in the next 50 years, and warned that therefore the country cannot afford to lose its good top soil. Thirty million tons of lime have been applied to land in Iowa in the last 15 years, yet the country as a whole is wasting our soil faster than is the case in India or China. Conservation is a national problem, and there must not be a slowdown. We must intensify our efforts to get a good conservation program. We should try to get all colleges to expand their soil-testing operations, and limestone producers must show the farmers the various beneficial reasons for using lime. Mr. Cornell listed several points: the need for more research, balanced conservation, adequate equipment for the farmer, and expanded lime producing facilities.

The main entertainment was on Thursday evening, following the last item of business at the convention, with the associate members acting as hosts. At this festive affair, which commenced with a reception in the Des Moines Room, each of the ladies received a lovely corsage. The annual buffet dinner in the Terrace Room followed, with an abundance of good food. The annual ball, held in the Grand Ball Room, was, of course, a huge success—the perfect way to end the well-planned convention.

N.S.G.A. Convention

(*From page* 111.)

afternoon before returning to the train at Los Angeles. On Tuesday morning the train arrived in Las Vegas, Nev., and a side trip was made to Hoover Dam and Lake Mead. The evening was spent taking in the fabulous casinos for which Las Vegas is famous. At midnight the train pulled out for the return trip *via* Salt Lake City, Utah, and Cheyenne, Wyo., to Chicago.

Many of those attending the conventions availed themselves of the opportunity to take a post-convention trip to the beautiful Monterey Peninsula which was sponsored by the two Northern California associations. Chartered buses left San Francisco on Friday morning, February 27, following the scenic Skyline Boulevard to the Felton grove of giant redwood trees, then along the coast through Santa Cruz to Monterey, and over the famous "17 Mile Drive" to Carmel. Many side trips were made, and the buses left Carmel on Sunday morning, returning to San Francisco.

The feature trip which, however, only a fortunate few were able to take, was to Hawaii, with options of 6 or 11 days.

The Missouri Valley Limestone Company is opening a quarry near Griswold, Iowa. Stripping is being carried out in preparation for the quarrying operations

Quarry Techniques

(*From page 91.*)

which loaders working under high banks would be buried, causing damage and delay. For several years, therefore, we have been working all of our loaders on low banks. In order to do this, we use a bulldozer to push the material down to the loader, so that the operator never has more than about 6 ft. of bank in front of him. (See photograph.) This has proved to be a very efficient and economical method of reclaiming screenings.

Social Security Official Urges Accurate Card Data

"It is very important that every person working on jobs covered by the Social Security Act make a special effort to show his social security card to his employer so that he can report the worker's correct name and number just as it is shown on the card," according to Thomas M. Galbreath, manager of the 79 E. Adams St., Chicago, social security office.

"By checking with your employer, you can be sure you are getting full benefit of your insurance which you are paying for in the form of social security taxes. The wages your employer reports for you are used to determine the amount of your monthly benefit when you retire at 65 or later, or the benefits paid to your survivors in the case of your death," Mr. Galbreath added.

Women workers should be particularly careful to see that they have a social security card bearing the same name as the one they are using at work, he cautioned. Too often, women workers whose names have been changed for any reason, such as marriage, divorce, etc., continue to work under their new name without changing the name on their card. In such cases, the worker should immediately change her name on her social security record.

To make doubly sure your social security account is correct, every worker should ask the Social Security Administration each year or so for a statement of wages credited to his account, the manager added.

According to the *Safety News Letter*, Cement and Quarry Section, the Bartow, Fla., operation of the International Minerals and Chemical Corporation has set a new all-time no-injury record for quarries and other open-pit operations. The personnel worked 2,093,383 man-hours without a disabling injury, the National Safety Council reported. This was accomplished between February 23, 1951, and January 19, 1952.

Mulzer Brothers have developed a quarry at Derby, Ind., with a crushing plant having a capacity of 2,000 tons per day of road rock, crushed stone, and agstone.

FLOMATON, ALABAMA: ANOTHER "TELL-TALE" TOWN

"TELL-TALE"
New Type C Centrifugal
Sand and Gravel Pump

Six producers in this remarkable gravel deposit area on the Alabama-Florida line keep 15 pumps busy the year round. Eleven of these pumps are Pekor *"Tell-Tales"* and the *"Tell-Tale"* majority is growing. Flomaton appreciates high production, long life, economical operation and . . . prompt service from an always ample stock of replacement parts.

This patented and only pump that warns when it's time to re-line is now available in the improved Type "C" in 4", 6", 8", 6x8"-suction and 8x10"-suction, in either tough semi-steel or "best-in-the-long-run" Ni-Hard. Type "C" bulletin on request.

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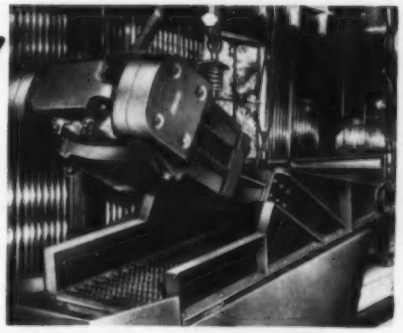

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personal mention

WILLIAM BOORHEM, formerly vice-president and general manager of the Malvern Gravel Company, Malvern, Ark., has been named general manager of the Bridgeport Materials Company of Dallas, Tex. Mr. Boorhem will supervise overall operations of the company.

CARL DIETZ has been made New York sales manager for the Johns-Manville Corporation's Celite Division. He was formerly district sales manager in Cleveland. Succeeding Mr. Dietz in Cleveland is RICHARD J. AMBERG, formerly of Detroit.

BOB REID, formerly a salesman for the Lakeside Gravel Company, Bellevue, Wash., recently became sales manager for the firm. He has worked for Lakeside since 1949 in the sales and traffic management departments.

CHARLES H. COSTELLO, president of the New Haven Manufacturers Association, was recently elected a director of the New Haven Trap Rock Company, New Haven, Conn.

ALBERT H. O'NEIL was recently elected assistant vice-president of Freeport Sulphur Company by the board of directors. Mr. O'Neil has been associated with Freeport since 1943.

HARRY L. RYAN, traffic manager of the Ash Grove Lime and Portland Cement Company, Kansas City, Mo., has been elected president of the Kansas City Traffic Club.

CLAUDE M. LAMBE JR. has been named merchandise manager of the United States Gypsum Company's industrial gypsum, lime, and paper department.

H. C. MAGINN, vice-president of the Calaveras Cement Company, was recently named vice-president of the Northern California chapter, Associated General Contractors of America, for 1953.

H.E. ROBINETTE, a retired Army officer, was recently appointed manager of the El Paso Perlite Co., Inc., El Paso, Tex. He served as adjutant of the Southwest Recruiting District for 32 years, and retired from the service in 1950.

DAVE JOHNSON, who was formerly vice-president of Texas Quarries, Inc., Dallas, Tex., has been named president of the organization, succeeding W. H. JOHNSON, his father. The senior Mr. Johnson, who founded the firm in 1928, became chairman of the board.

CHARLES YEAGER has been named director of public relations and product promotion for Texas Industries, Inc., according to an announcement released by Ralph B. Rogers, president. Mr. Yeager previously was promotion manager for the New York *Evening Journal* and *Cosmopolitan* and other Hearst magazines; he was also public relations director for the State Fair of Texas.

EARL C. FAULKNER, who resigned from his post with the United States Gypsum Company last May after 21 years with that firm, recently became executive vice-president of the Lehon Company of Chicago, manufacturers of asphalt roofing materials and related items. He will direct manufacturing, sales, and financial activities of Lehon.

SIDNEY T. KEEL has been promoted to the post of sales manager of rock and phosphates for the International Minerals and Chemical Corporation of Chicago.

Since 1926, the Sauerman scraper machine pictured above has given efficient, economical service at the crushing plant of Wm. P. McDonald Corp., of Brooksville, Florida. The plant consists of two 2-cu. yd. Crescent Scrapers operating on long stockpiles at adjacent angles.

Keep Your Handling Costs Down

Simplify your job of handling materials—just as many other aggregate producers and producers of cement, lime and gypsum have done—by installing a Sauerman Drag Scraper.

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Whether your handling problem is excavating or stockpiling bulk materials, costs go down and stay down when a Sauerman Scraper is installed. Backed by more than forty years experience, our Engineering Department will advise and assist you in setting up an efficient, long-lasting and profitable operation.

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GEORGE W. GARRETT, former secretary and vice-president of the Stewart Sand and Material Company, Kansas City, Mo., was recently elected to the newly created position of general manager and executive vice-president.

FRANK B. WARREN was elected president and JOHN Q. ADAMS vice-president and treasurer of the Bessemer Limestone and Cement Company, Youngstown, Ohio Mr. Warren was former vice-president and general manager. Mr. Adams was also elected to the board of directors.

N. O. WAGNER and J. E. SWEITZER have been appointed assistant vice-president and general sales manager, respectively, of the Alpha Portland Cement Company, Easton, Pa., effective February 1.

H. N. Barrett Jr.

M. M. Muller

H. P. Eells Jr., president of Basic Refractories Incorporated, has announced the election of two vice-presidents. MAX M. MULLER will direct operations and engineering, and HARVEY N. BARRETT JR. will take charge of sales activities.

Dr. Muller holds a master's degree in mechanical engineering from the Swiss Federal School of Polytechnics in his native Switzerland and a Ph.D. in ceramic engineering from Ohio State University. While at Ohio State Dr. Muller joined Basic Refractories in 1936 as a laboratory assistant to H. C. Lee. From 1939 to 1946 he served in various capacities with other American companies.

He rejoined Basic Refractories in 1949 as Ohio works manager, becoming manager of operations and engineering in 1952. He is a member of the American Ceramic Society, the American Association for the Advancement of Science, and the American Institute of Mining and Metallurgical Engineers.

Mr. Barrett also joined Basic Refractories while a student at Ohio State University, in 1934. Upon receiving his A.B. in mineralogy, he began in production at the company's Ohio works in Maple Grove. After serving in World War II, he became successively manager of refractory sales development, assistant to the vice-president of sales, assistant to the president, and most recently manager of refractory sales.

HARRIS N. SNYDER, vice-president and general manager of the Buffalo Slag Co., has been re-elected first vice-president of the Millard Fillmore Hospital of Buffalo.

HERBERT H. DICKEHUT JR. has been promoted from plant superintendent to general manager of the Texcrete Company, Corpus Christi, Tex. (one of the Texas Industries, Inc., plants). He succeeds his father, H. H. DICKEHUT SR., who has been named special consultant for the concrete pipe divisions of Texas Industries.

The new general manager was previously plant manager of Acme Concrete Pipe Company, Inc., Corpus Christi, and earlier was plant superintendent of Austin Concrete Works, Inc., Austin. During World War II he served in the South Pacific, Japan and China with the Sixth Marine Division.

Mr. Dickehut Sr., before his association with Texas Industries in 1952, was vice president of Acme Concrete Pipe Company and general manager of Austin Concrete Works. He has 24 years of experience in the concrete pipe business. He attended Southwestern University, is a veteran of World War I, and a past director of the American Concrete Pipe Association.

O. B. KELLY has been transferred by Texas Industries from Pharr to Corpus Christi to become plant superintendent at the Texcrete plant. He was previously general manager of Builders Supply Inc. at Pharr.

P. P. Tyler, president, Gypsum, Lime and Alabastine, Canada, Ltd., Toronto, Ont., has announced the appointment of J. H. ROBINSON as general manager. Mr. Robinson formerly was general works manager.

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The Gruendler Mobile 2-in-1 complete Crushing & Screening Plant

Bulletin on Request

Here shown is the Gruendler Model 75 at work for The Bailey Limestone Co., Kirksville, Mo. Designed for 30 T.P.H. on AG-LIME and 100 T.P.H. on AGGREGATES.

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Ample CONVEYOR and SCREEN CAPACITY plus trouble free Drives have made it possible to almost double the rated capacity of the plant.

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BEN MCCRUM has been appointed works manager of the Halliburton Portland Cement Company's Corpus Christi, Tex., plant, succeeding Holger Struckman, who recently resigned from this post. Mr. McCrum was formerly associated with the Universal Atlas Cement Company at its Waco, Tex., plant. He has been active in the cement industry for 36 years.

ARTHUR R. CAHILL was elected assistant treasurer of International Minerals & Chemical Corporation at a meeting of the board of directors of the corporation, according to an announcement by Louis Ware, president. He will be on the staff of Robert P. Resch, vice-president and treasurer of the corporation.

Mr. Cahill has been vice-president and treasurer of Montgomery Ward & Company for the last four years. Before becoming associated with Montgomery Ward 11 years ago, he was with the Federal Reserve Bank of Chicago.

JOHN H. ROBINSON, Toronto, was recently appointed general manager of Gypsum, Lime and Alabastine, Canada, Limited. He has been associated with the company since 1921, first as plant superintendent. Prior to his new appointment he was general works manager. Mr. Robinson is also a director of the company.

W. G. SMITH, who has been with the company since 1932 in the Standard Lime Division, Quebec, in the capacity of plant engineer and later as general superintendent, has been moved to Toronto to succeed Mr. Robinson. Mr. Smith is a member of the Canadian Institute of Mining and Metallurgy.

On February 1 R. P. SCOTT became operating assistant at Penn-Dixie's general operating office at Nazareth, Pa. He replaces Herbert W. Rich, who recently resigned from this post.

Mr. Scott was for more than 15 years employed in the engineering and production departments of the Universal Atlas Cement Company at its plants and in the New York office. He was manager of the Manufacturing Research Division of the Portland Cement Association from 1945 to 1947. For the last five years he has served as superintendent of the Toledo plant of the Medusa Cement Company.

Officials of Penn-Dixie have announced the resignation on January 31 of HERBERT W. RICH, who was formerly operating assistant at the firm's general operating office.

Mr. Rich has accepted a position as vice-president of Dominion Minerals, Inc., at Piney River, Va. This firm, an affiliate of the Riverton Lime and Stone Company, processes aplite, used in the glass and ceramic industries. Mr. Rich joined Penn-Dixie in 1941 as quarry superintendent at Plant 4. A year later he was appointed plant superintendent, a post in which he served until 1949, when he became Division Superintendent, North, and subsequently operating assistant, with headquarters at Nazareth.

WILLIAM BOORHEM has become manager of the Bridgeport Materials Company, Dallas, Tex. Formerly a vice-president and general manager of the Malvern Gravel Company, Malvern, Ark., Mr. Boorhem will supervise overall operations of the Dallas concern. In addition to appointing the new manager, the firm has also opened a new sand and gravel pit just west of Dallas.

Appointment of PHILIP A. GAEBE as senior sales engineer for basic refractories and chemicals in the Pittsburgh area for the Chemical Division of Kaiser Aluminum & Chemical Sales, Inc., was announced February 12 by Joseph A. Voss Jr., division sales manager at Akron, Ohio.

Mr. Gaebe has been in the production department of Kaiser Steel Corporation at its plant in Fontana, Calif, for the past four years A winner of the 1951 national McKune Award presented by the American Institute of Metallurgical Engineers, he served with the U. S. Navy for four years during World War II and is a graduate of Indiana University.

JAMES L. WILLIS has recently been appointed senior sales engineer for basic refractories and chemicals on the Eastern Seaboard for the Chemical Division of Kaiser Aluminum & Chemical Sales, Inc.

Mr. Willis has been plant metallurgist for Central Iron & Steel Company, Harrisburg, Pennsylvania for the past three years and in various other metallurgical capacities with the same company since 1941. He served with the U. S. Air Force during World War II. He is also a member of the board of directors of the American Institute of Metallurgical Engineers, eastern section, and a member of the A.I.M.E.'s national open hearth committee.

ED C. JANCIK, formerly Texas branch manager of Super Concrete Emulsions, Ltd., has been named general sales manager for the Gulf Coast area of Texas Lightweight Aggregate Company, Houston subsidiary of Texas Industries, Inc.

MATT LAVAIL, formerly general manager of the Houston subsidiary, has been transferred to the Dallas Lightweight Aggregate Company at Dallas; and LEWIS MIMS has been promoted to general superintendent of the Stafford and Rosenberg plants of Texas Lightweight Aggregate Company.

Mr. Jancik, a civil engineering graduate of Texas A and M in 1929, has been in the construction materials business in the Gulf Coast area for 16 years. He is a registered professional engineer, a member of the Texas Society of Professional Engineers, the A.S.C.E., the Houston Engineers Club, and the Producers Council of Houston.

SIDNEY H. ELIASON, president of the Western Gypsum Company, Sigurd, Utah, was the speaker at the January meeting of the Utah Section, American Institute of Mining and Metallurgical Engineers, on January 15. He spoke on the mining and processing of gypsum in Utah.

How many moving parts?

In this particular rope construction, there are 199 individual wires. Each is a carefully designed "moving part."

To assure highest quality, all stages of wire manufacture and rope fabrication are closely controlled. Each wire is protected with a film of lubricant that is force-fed cold during the fabricating. May our engineers recommend the right rope for *your* equipment?

GET THE RIGHT ROPE FOR YOUR QUARRY EQUIPMENT

MACWHYTE WIRE ROPE

Ask for G-15 Handbook

MACWHYTE COMPANY
2987 *Fourteenth Avenue, Kenosha, Wis.*
Mill depots: New York • Pittsburgh Chicago • St. Paul • Fort Worth Portland • Seattle • Los Angeles
Distributors throughout U.S.A.

Officials of the General Crushed Stone Company of Easton, Pa., have announced the appointment of BRUCE C. ROSS as a salesman in their Syracuse Division office, as of March 1. For the last two years Mr. Ross has been associated with Dun & Bradstreet's Syracuse Sales Division.

WALTER C. BROACH has been appointed southern sales manager for the feed phosphate department of International Minerals & Chemical Corporation's Phosphate Division.

Mr. Broach will be responsible for sales promotion of phosphorus supplements for feed and mineral manufacturers throughout the Southeast, including the new 20/Fos to be produced at International's chemical plant nearing completion at Bonnie, Fla. He will make his headquarters in Atlanta, Ga.

Appointment of E. C. MCDONALD JR as head of the Georgia Marble Co. technical service laboratory was announced recently. This new customer facility is now under construction and is expected to be in full operation soon.

Mr. McDonald spent three years in lead and zinc pigment production control for Eagle-Picher at Galena, Kans., four years in the Devoe & Raynolds laboratories at Louisville, Ky., and has been in charge of the paint and varnish research for Eagle-Picher at Joplin, Missouri, for the last two years.

Among the nation's leading engineers and industrialists slated to receive citations for their achievements at the annual University of Wisconsin Engineers' Day on April 10 is JULIAN D. CONOVER, executive secretary of the American Mining Congress, Washington, D. C.

Mr. Conover worked as a geologist and mining engineer for various interests in Alaska, the Lake Superior region, Mexico, and South America from 1915 to 1923. He was an instructor in engineering geology at the University of Wisconsin while completing work on his engineering degrees. Since 1935 he has served as secretary of the American Mining Congress; and he is the publisher and editorial director of the *Mining Congress Journal*. Mr. Conover has played an important part in the formation of a national policy concerning the mineral resources of the United States.

National Gypsum Company officials have announced the promotion of JOHN C. LAPP to manager of management training and organization planning, a new position. He will head a program designed to assist personnel in the development of executive abilities. By means of this program, the company expects to establish a group eligible for promotion in their own or other divisions of the business.

HARRIS N. SNYDER, president of the Federal Crushed Stone Corporation, Buffalo, N. Y., has been presented a meritorious service pin by the National YMCA in recognition of his work in behalf of the Buffalo YMCA.

E. J. Fox

Officials of the Diamond Alkali Company's Standard Portland Cement Division, Cleveland, Ohio, have announced the appointment of E. J. Fox as manager, Cement Sales, effective March 10, 1953.

Mr. Fox started in the cement industry in New Castle, Pa., and has been with Diamond since it entered the cement business in 1925. He will assume the duties of B. H. Beverstock, who is retiring from the company.

NELSON UPTON, director of training for the National Gypsum Co., Buffalo, N. Y., served as leader of a panel discussion on initial training for first-line supervisors at the annual mid-winter conwerence of the New York State Industrial Training Council in Niagara Falls, N. Y.

PAUL E. TODD, Portland Cement Association engineer, has retired after 28 years of service in the Los Angeles district office. A graduate of Whittier College, Mr. Todd has been active in freeway, airport and other concrete construction projects in Los Angeles area.

JOSIAH WORK, associated with the Westvaco Chemical Division, Food Machinery & Chemical Corp., since 1950, has been made manager of the Pocatello (Idaho) elemental phosphorus plant Mr. Work was in charge of the TVA phosphate plant at Wilson Dam, Tenn., for 12 years. Subsequently he was plant manager of the new Houston phosphate plant of Mathieson Chemical Company.

W. O. BOVARD, vice-president and a director of the Canada Cement Company Limited, Montreal, has retired after 42 years of service with the company. He will continue to serve as a director of the company.

ROBERT B. GLENN was appointed superintendent of Penn-Dixie's Plant No 1 at Kingport Tenn., effective March 1. At the same time M. T. O'CONNOR, who held this post from 1948 until March 1, has been assigned to the general engineering office at Nazareth, Pa.

Mr. Glenn has had ten years in various engineering positions, including several in the cement industry. He joined Penn-Dixie in 1950 as a mechanical engineer and later was appointed maintenance and project engineer.

RALPH H. CAMPBELL, a vice-president of the Medusa Portland Cement Company, was recently appointed general sales manager in charge of gray and white cement sales, in addition to his other duties.

Eliminate 70% to 90% of Conveyor Downtime

EVERYTHING is contained INSIDE the pulley shell!

HERE'S a money-saving departure from conventional conveyor drives. A Cedarapids-Schrock *Motorized* Head Pulley is simply a new application of the long-proven gear reduction drive, with everything . . . electric motor, reduction gears and all moving parts . . . contained inside the drum, completely protected from grit, dirt and weather and with no outside parts or motors to service. 70% to 90% of conveyor trouble and downtime is saved by eliminating the exposed parts necessary with conventional pulley drives. In operation, the pulley shell rotates about the electric motor which is held stationary by a torque arm attached to the conveyor frame. The speed of the shell depends on the combined reduction ratio of the pinions and gears inside the shell. Compact, easy-to-install, job-proved Motorized Head Pulleys are available in sizes from 5 to 30 HP and in various widths.

Find out all the advantages of converting your belt conveyor or belt-bucket elevator installations to *motorized* efficiency before you need head pulley replacements. See your distributor today, or write for Bulletin MP-1.

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U. S. A.

Built for sale in Arizona, California, Nevada, New Mexico, Southern Oregon, Southwestern Utah and Texas by
YUBA MANUFACTURING CO.
(Pulley and Sprocket Department)
Benicia, Calif.

obituaries

THOMAS C. ROGERS, owner and manager of the Pacific Rock & Gravel Company of Los Angeles, Calif., died recently in his home at San Marino, Calif. He was 65 years old.

MISS GRACE E. GILSON, 83, retired official of the Valley Sand & Gravel Company, Rochester, N. Y., died on January 14. She retired from the firm about five years ago.

RUTLAND LEVANGER, 60, senior engineer and chief draftsman of the Marquette Cement Manufacturing Company, died in a Chicago hospital on March 13 of a heart ailment. He had been hospitalized eight days earlier.

Mr. Levanger received his primary and secondary schooling in Norway. He earned his master's degree in engineering at Darmstadt University, Germany. In 1926 he returned to the United States and began working as an engineer with the Marquette Cement Manufacturing Company at its Oglesby, Ill., plant. With the exception of a short period spent as a consulting engineer for two cement companies in Mexico, Mr. Levanger had been with Marquette since that time.

LESTER J. KELIHER, 61, owner of the Keliher Construction Company, Dallas, and former president and general manager of the Big Rock Stone and Material Company, Little Rock, Ark. (from 1942-1946), died January 18 at a hospital in Rochester, Minn. A brief portion of his long career in civil engineering and the building material field was spent as a development engineer with the Portland Cement Association in Little Rock. Mr. Keliher was a member of the American Society of Civil Engineers and the Associated General Contractors of America.

FINLEY V. HEISTAND, an engineer for the Park Sand and Gravel Company, Muncie, Ind., died unexpectedly at the firm's pit on February 3. Mr. Heistand suffered a heart seizure and died before arrival at a hospital. He had been suffering from a heart ailment. Mr. Heistand, who was 65 years old, had been a crane operator and a stationary engineer for the Park concern for 30 years.

GEORGE E. STEENLAND, 51, chief engineer of the Pioneer Sand & Gravel Company of Seattle, Wash., died recently at Northgate Hospital in Seattle. Death was due to a heart ailment.

STEPHEN R. STANKO, JOHN VIDOVICH, and ALBERT SMITH SR., are three old time employees of the Warner Company who have died recently. Mr. Stanko was mechanic at Cedar Hollow, Mr. Vidovich was a dredge operator and Mr. Smith was a lime loader. The latter two were on pensions at the time of their deaths.

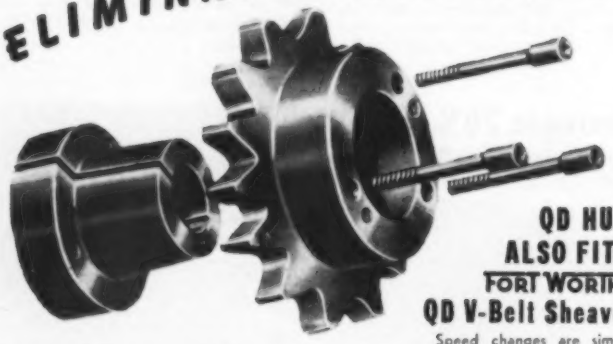
J. B. MCLELLAN, 78, co-owner with his sons of the McLellan Stone Company, Bowling Green, Ky., died January 19 at a hospital in Bowling Green. A former road contractor, he went in partnership with his son in 1944.

JAMES E. BRYAN, president of the Bryan Rock & Sand Company, Inc., Raleigh, N. C., died unexpectedly on February 12. Mr. Bryan was a member of the National Crushed Stone Association and the National Sand and Gravel Association. His firm operates eight plants in North Carolina and Virginia.

FORT WORTH QD Roller Chain SPROCKETS WITH TAPERED SPLIT HUB

PATENT APPLIED FOR

ELIMINATE REBORING!



QD HUB ALSO FITS FORT WORTH QD V-Belt Sheave

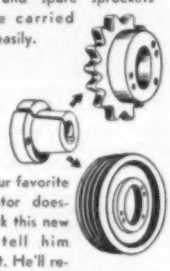
"OFF THE SHELF" SERVICE AVAILABLE FROM INDUSTRIAL DISTRIBUTORS

Reboring of stock bore sprockets to fit various shafts is eliminated due to the various bores available in the QD hub. Installation and removal from the shaft is made easy by the tapered fit of the hub and sprocket. Hub assembly grips the shaft equivalent to a "press fit."

Replacement cost of sprockets is reduced as same hub can be used for new sprocket.

Catalog explaining additional advantages and construction details will be furnished on request.

Speed changes are simplified and "spare" sprockets can be carried more easily.



If your favorite distributor doesn't stock this new item, tell him about it. He'll reward you with better service.

FORT WORTH STEEL AND MACHINERY CO.

Dept. 254, 3600 McCart, Fort Worth, Texas

BRANCH WAREHOUSES & SALES OFFICES
LOS ANGELES, HOUSTON, TEXAS, MEMPHIS, TENN., ATLANTA, GA., KANSAS CITY, MO., CHICAGO, ILL., ST. LOUIS, MO., JERSEY CITY, N.J.

OTHER FORT WORTH PRODUCTS
V-BELT DRIVES
SCREW CONVEYORS and ACCESSORIES
SCREW ELEVATORS
INDUSTRIAL FANS

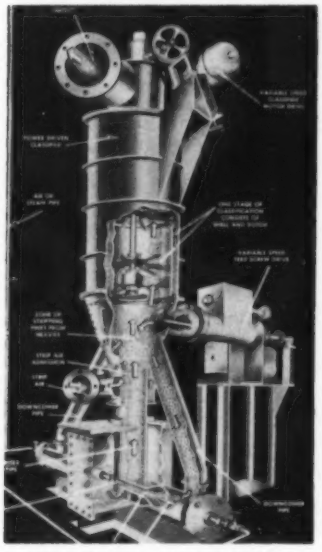
new machinery and supplies

PIT AND QUARRY

• Jet Pulverizer

A machine for finely pulverizing coal, clays, fluorspar, talc, pumice, gypsum and many other minerals is being produced by the MaJac Engineering Company, 189 Freeport Road, Blawknox, Pa.

The machine consists of two opposing guns that feed the material to be pulverized to a high speed jet of air, gas or steam. The particles of material in the high-speed jet collide with a similar stream from the opposite gun and broken into tiny particles by the force of the collision. From the zone where the



material is pulverized it is carried by the air stream upward to a power driven classifier where the larger particles are thrown against the shell and pass downward to enter the jet guns again. The finer particles rise on the air stream through the classifier to the discharge outlet.

Control of the fineness of the product is accomplished by varying the distance between guns, by varying the pressure in the guns, and by varying the speed of the multi-stage classifier and the amount of air introduced above the pulverizing zone.

• 1½ Cu. Yd. Front End Loader

A front end loader of 1½ cu. yd. capacity has been announced by The Transmission and Gear Company, 10421 Haggerty Avenue, Dearborn, Mich.

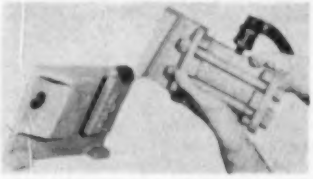
The new "TLF-150" Transo Load Master has 4-wheel drive, rear-mounted

engine, torque converter, and a custom designed planetary type reversing transmission with the same speeds forward and reverse. Power steering, dual lifting and bucket rocking cylinders, and arrangement of all vital parts at the rear of the machine are other features.

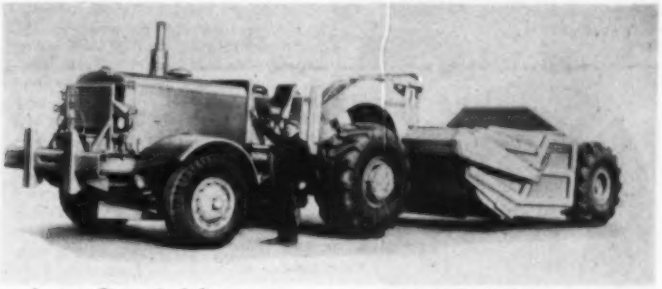
• Two Inch Air Vibrator

A portable air vibrator with a 2 in. piston has been announced by the Cleveland Vibrator Company, 2828 Clinton avenue, Cleveland, Ohio.

The "LSRR" vibrator has a male bracket on the vibrator and a female bracket mounted on the bin. The vi-



brator is slipped into the bin bracket and connected to an air line. It can be easily moved to other locations by the installation of additional female brackets. It is designed for use on bins, hoppers, chutes, cars and other equipment carrying granular materials.



• Lever Operated Scrapers

A line of scrapers that features the introduction of a "lever action" design in conjunction with a hydraulic system has been brought out by the Euclid Road Machinery Company, Cleveland 17, Ohio.

Levers are used to replace cables and sheaves formerly used to actuate the bowl lift, apron lift, and ejector. The hydraulic jacks for operating the bowl lift and apron lift are mounted vertically and incorporated in the torque tube. This reduces the height of the scraper by more than 2 ft. and eliminates the use of more than 90 ft. of cable. Only 11 ft. of cable are used to connect the bowl and the bowl lift lever.

The hydraulic jacks used are identical and interchangeable. They are single stage and are operated from a hydraulic pump mounted on the front of the tractor through simplified, fast-acting controls.

The line of "lever-action" scrapers consists of 12, 15½, and 18 cu. yd. models. They are supplied with either Cummins or General Motors engines with two motors being used on the 18 yd. size. All have hydraulic booster steering, planetary type double reduction axles, and independent control of all scraper actions. Cutting blades consist of four identical, reversible, and interchangeable sections.

What's overhead won't worry you...

YOU'RE SAFE WITH THE

NEW SUPER-TOUGH

WILLSON SAFETY HAT

THE NEW WILLSON SAFETY HAT is entirely new in design, material and method of manufacture . . . tough as metal and more resilient! Here are some other outstanding features of the new Willson Super-Tough* Safety Hat . . .

streamlined contour—deflects objects more effectively and provides a greater safety "pocket" inside.

new suspension design—adjustable "hammock" headband is suspended *inside* at 6 points. No exposed rivets or lacing—no holes through hat.

comfortably cool—space between headband and shell provides ample air circulation for wearer.

moisture resistant—practically 100% waterproof and resists many caustics and acids.

Passes all required tests with an extra margin of safety!

Write for your copy of the new bulletin describing the Willson Super-Tough* Safety Hat.

*trademark

More than 300 safety products carry this famous trademark

WILLSON

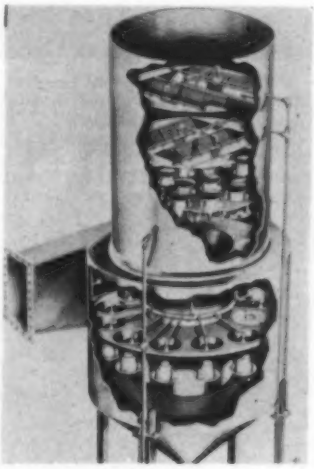
Established 1870

WILLSON PRODUCTS, INC.
102 THORN STREET, READING, PA.

• Stack Dust Scrubber

A system for controlling stack dust that utilizes six different principles of dust removal has been announced by the Johnson-March Corporation, Philadelphia 3, Pa.

The unit is designed for removing dust from stacks of rotary dryers, cyclones, kilns, roasters, mixers, pulverizers, asphalt plants, and similar operations. Sizes are available from 1,500 c.f.m. to 48,000 c.f.m. The dust is removed from the stack gases and discharged as a sludge.



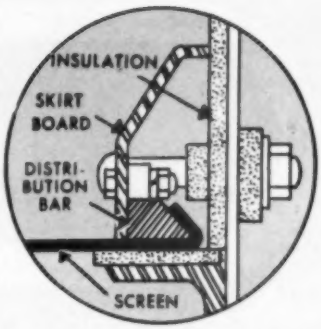
The "Johnson-March Liquid Precipitator Multiple-Action Scrubber (Type V)" uses approximately 2 gal. of water per minute at 40 p.s.i. to each 1,000 cu. ft. of gas per minute.

The unit operates by subjecting the gas to centrifugal separation as it enters, then to a change in direction and velocity so that the dust particles impact upon impinger plates that are subjected to a water jet. This breaks up the water and scrubs the solids from the gas. Expansion follows and much of the solid matter is dropped. Inertial separation then occurs when the gas is redirected upward to another expansion chamber then through another set of scrubbers and finally through a group of precipitator elements which use Compound M in the spray for final cleansing of the air. The use of Compound M causes wetting of dusts that are ordinarily water repellent.

• Hard-Facing Electrodes

A line of hard-facing and manganese electrodes for rebuilding and repairing wearing surfaces is being manufactured by The Sight Feed Generator Company, West Alexandria, Ohio.

Included in the line are shock resistant metals, hard-facing, manganese coatings, austenitic materials, build-up rods, and tubed tungsten for cutting surfaces. Suggested applications include repair of bits, conveyors, tractor parts, crushers, gears, roll mills, shovels, and many other kinds of equipment.



this exclusive HANCO feature insures

Highest Screen Heating Efficiency

Hanco Electric Screen Heaters heat woven screens to

- Speed screening of moist materials.
- Eliminate labor of cleaning to keep mesh open.
- Save wear caused by cleaning, extra weight.

The Hanco Quick-Change Attachment makes screen changes easy . . . insures uniform, efficient heating.

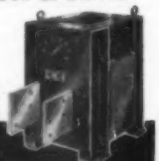
- Copper distribution bars make positive, direct contact with screen cloth, eliminating current loss suffered when skirtboard is part of circuit.
- Contact cannot be broken or weakened by rust.
- Distribution bars shielded against abrasion.
- Minimum insulation used.

Write for Bulletin 521

F. R. HANNON & SONS

Engineers
• *Since 1926* •
Manufacturers

CANTON 7, OHIO



Hanco THE PIONEER ELECTRIC SCREEN HEATER

• Mobile Compressor Van

A combination of truck mounted air compressor and van truck has been introduced by the Davey Compressor Company, Kent, Ohio.

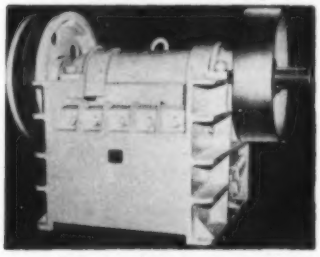
The "Air Van" is a Twin Coach Fageol Van in which is mounted a stand-

ard Davey 105 or 160 c.f.m. "Auto-Air" compressor. These compressors are driven from the truck engine through a heavy-duty power take-off.

This unit is suggested for use where men and materials as well as an air compressor must be transported to the job.

• Adjustable Jaw Crusher

The Gruendler Crusher and Pulverizer Company, 2913 North Market Street, St. Louis, Mo., has announced a new hydraulic jaw adjustment on its line of jaw crushers. The new adjustment feature eliminates the wedge and screw mechanisms and makes possible



the adjustment of the crushers while in operation.

Other features of the "Series 10" crushers are self-aligning roller bearings, heavy-duty manganese jaws and cheek plates.

• Watertight Conduit

A flexible, watertight conduit which has Underwriters' approval for use in wet locations is being manufactured by the American Brass Company, Waterbury, Conn.

The conduit, "Sealtite" Flexible Electrical Conduit Type UA, has a tough, extruded synthetic cover over a flexible metal core. The conduit is made of spirally wound, interlocked, zinc-plated steel strip with a copper bonding conductor wound between each convolution on the inside of the conduit.

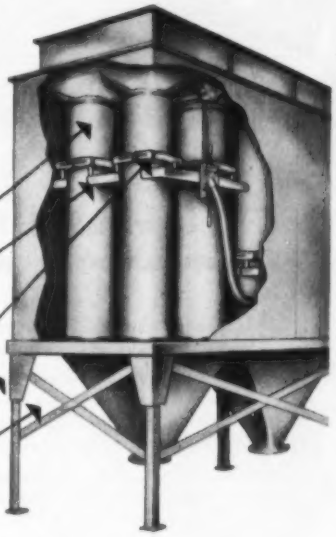
The conduit can be cut to length and bends easily. Approved fittings are available. It is sold in long lengths in electrical ID sizes from 3/8 to 1¼ in.

IT'S NEW!

AEROTURN "On The Job"

. . . the SERIES 12 Dust Collector

AEROTURN is proud to announce its NEW series 12 Dust Collector, the result of eight years of intensive research and successful application in more than 40 industries. Produced under Hersey Patent Rights and pioneered by the Turner and Haws Engineering Co., Inc. of Boston, AEROTURN is industry's most advanced, automatic, self-cleaning dust collector. A high volume air cleaning rate at a substantial, dollar-saving economy is produced by AEROTURN'S fully automatic, pressure regulated, reverse-air-jet cleaning operation.



NEW Series 12 features include:

★ Standard 12" diameter felt filter bags.

★ Completely new designed cast aluminum blow ring carrier assembly.

★ Improved automatic, self-adjusting blow rings.

★ Overall reduction in size of collector unit.

★ Standardized overall design featuring pre-assembled units for reduced installation time and costs.

Whatever your dust collection problem, including reclamation of filtered material, you'll find that an AEROTURN Dust Collector will meet your needs successfully and economically. To learn more about the NEW Series 12 Collector, simply fill in the coupon below and mail, or a T & H Representative will call at your request.

TURNER & HAWS Engineering Co., Inc. 87 Gardner St. Boston

☐ Please send me a copy of your Series 12 Brochure

☐ Have Representative Call

Name_____

Address_____

City_____ Zone____

State_____

8-12

J-M Industrial Friction Materials are the No. 1 choice of most leading manufacturers of earth-moving equipment

Friction materials are so vital to smooth and satisfactory machine performance that most manufacturers choose them with utmost care.

They look for the *correct* combination of operating characteristics and maximum wear. That is why the majority of manufacturers of earth-moving equipment find exactly what they need in Johns-Manville Industrial Friction Materials.

Time and again, J-M Industrial Friction Materials have set records for endurance and low-cost operation. That's not surprising, for J-M friction products are engineered for the job. Whether in block, lining, facing or cone form, they are formulated for maximum service life and top performance.

When it's time to replace clutch and brake friction materials on your own machines, take a tip from the manufacturers and specify Johns-Manville. In that way you can be sure that your equipment will continue to give the excellent service the maker built into it.

Write for your copy of "Johns-Manville Industrial Friction Materials" FM-12A. It contains a wealth of important application and performance data. Address: Johns-Manville, Box 60, New York 16, N. Y.

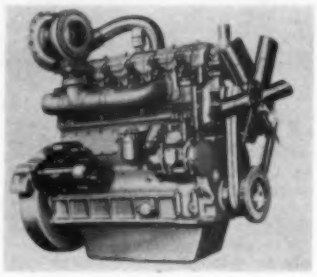
Johns-Manville
INDUSTRIAL FRICTION MATERIALS
No. 1 With Leading Manufacturers

• Turbocharged Diesels

Five sizes of diesel engines are now available as turbocharged units the Waukesha Motor Company, Waukesha, Wisc., has announced.

These are claimed to be among the first relatively small engines to have the advantages of turbocharging incorporated in them. The five sizes include three for transportation or power use and two for industrial use. They range from 185 hp. to 570 hp.

The addition of turbochargers has increased the horsepowers of the engines from 25 to 40 percent over the older



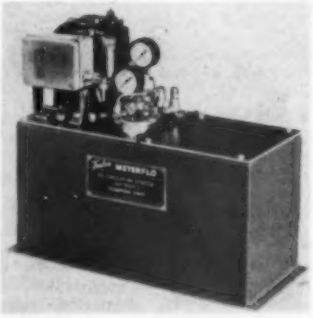
models. Features of the engines include: spherical fuel combustion chamber; tangential throat opening; insulating air space surrounding lower half of combustion chambers; American Bosch injection equipment; single orifice pintle-type nozzles; Schwitzer-Cummins or Elliot turbochargers; alloy cylinder liners; heat-treated drop-forged connecting rods; Stellite faced valves and inserts; and full-pressure lubrication.

These engines have improved fuel efficiency, better weight/horsepower ratio and improved mechanical efficiency as a result of the addition of turbocharging.

• Oil Circulating System

"Meterflo," an oil circulating system has been developed by the Trabon Engineering Company, 1814 E. 40 Street, Cleveland 10, Ohio.

The system controls the flow of oil to every bearing under pressure. Features



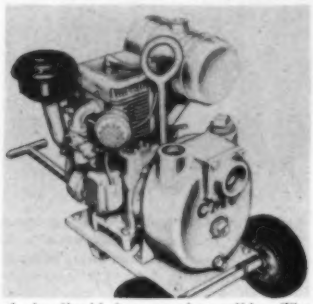
include rotary type pumps, flows rates to 80 cu. in. per minute, and metering valves. A hi-lo pressure switch connected to warning lights shows too-high or too-low pressure; blocked line; low oil supply; or will shut off the machine.

• Self-Priming Pump

A line of portable self-priming centrifugal pumps is available from Construction Machinery Company, Waterloo, Ia., under the name of "Dual-Prime."

The line includes four sizes and seven models, all powered with air-cooled engines, with sizes from 1½ in. to 4 in. The self-priming is accomplished through the use of dual volutes.

The pump case is a one-piece type and self-cleaning due to the sweeping action

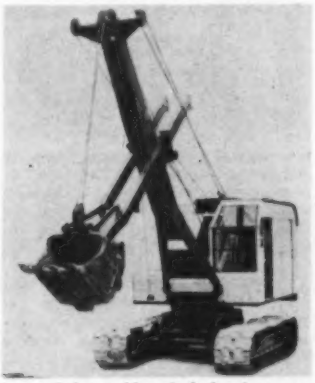


of the liquid in removing solids. The impeller shaft is sealed with a rotary shaft seal of the greaseless type that requires no lubrication, and this seal is protected from abrasion by a hydraulic seal at the impeller rim. The pumps are close coupled, with the pump arranged for easy servicing or inspection. They may be obtained in skid or rubber tire mounted models.

• Half yd. Shovel

The new Model "S" Little Giant Shovel features a twin dipper stick with a cable crowd.

Other features are: ball bearing turntable which uses 358 steel balls instead of rollers to rotate the machinery deck, internal band clutches, Shafer self-align-



ing sealed cartridge shaft bearings, cut steel drive gears, and all-welded body.

The machine can be obtained as a truck mounted unit or for mounting on a truck. It can be readily converted to crane, pile driver, dragline or trench hoe operation. The dumping radius is 21 ft., the dumping height 15 ft. and the below digging depth is 3½ ft. This is a product of Little Giant Crane and Shovel, Des Moines 13, Iowa.

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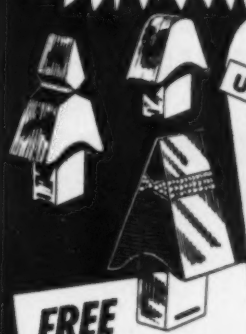

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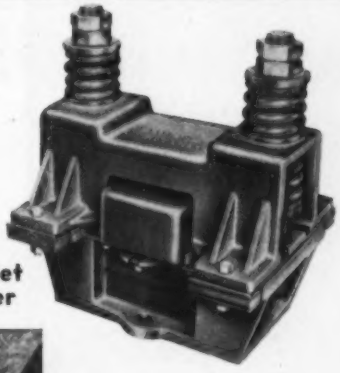

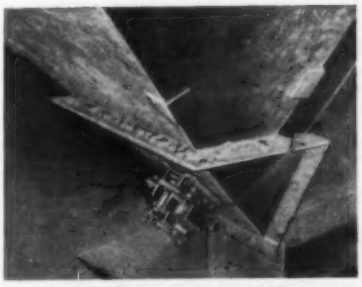

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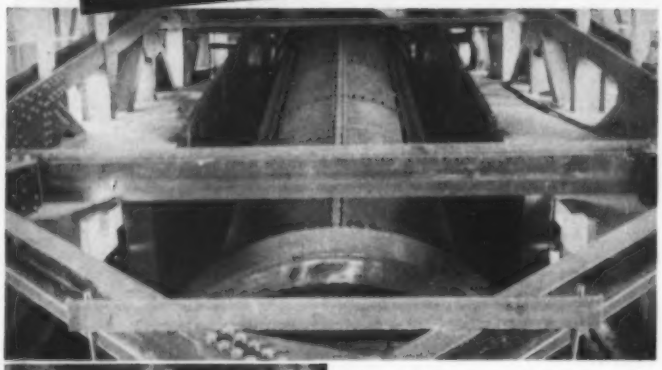

YUBA makes Abrasion Resisting Steel Screens, flat or revolving, for all screening purposes—separating, scrubbing, sizing. Holes are taper drilled to prevent clogging, can be small and closely spaced for screening sands bearing monazite and other rare earths. All thicknesses from ¼" up; other dimensions as big as your needs—screen shown is 50' long, 9' diameter, weighs about 65 tons. Competitive prices—ask for quotations.

YUBA-built conveyor pictured can handle 1440 tons per hour, is part of nearly mile-long conveyor system carrying crushed rock (minus 8") from pit to plant to stockpile. Yuba has built hundreds of heavy-duty conveyors for rock, gravel and sand since 1909. Put this experience to work on your conveying problems NOW.

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• Large Jaw Crusher

An overhead eccentric jaw crusher of a 42 in. by 48 in. size has been added to the line of the Pioneer Engineering Works, Minneapolis 13, Minn.

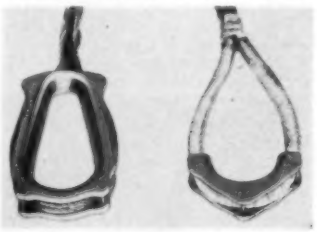
The crusher has a crushing chamber of more than 4 cu. yd. volume and a weight of 94,000 lbs. The shaft is carried on SKF self-aligning roller bearings

that are held in machined saddle-type mountings. Jaws are of manganese steel and two-piece construction, are shaped to reduce wedging from the cold flow and peening of the metal. The base is double-wall, box-type, all welded built in top and bottom sections for ease in handling. The jaws can be set for openings from 4 to 13 in.

• Reuseable Thimbles

An eight-part braided sling featuring reuseable thimbles has been developed by the A. Leschen & Sons Rope Company, St. Louis 12, Mo.

The thimble fittings are attached by pins instead of hammered down clamps and may be removed and fastened to



new slings. The "Pin-Lock" thimbles are said to effect savings of 20 percent or more on the cost of new slings. The sling which is eight part and braided is a new development and is said to be an improvement over other types.

Cleveland Brothers Equipment Company, Harrisburg, with branches at Wilkes-Barre and Frackville, Pa., has been appointed distributor of Bucyrus-Erie ⅜- to 4-yard gasoline, diesel and single-motor electric, general purpose convertible excavators in east central Pennsylvania. They also will handle the truck-mounted Hydrocrane and Hydrohoe as well as Red Arch dragline buckets.

Cleveland Brothers' territory consists of Pennsylvania east of and including the counties of Tioga, Lycoming, Clinton, Centre, Hungtingdon, and Fulton; and west of and including Wayne, Pike, Monroe, Carbon, Schuylkill, Lebanon and Lancaster counties.

trade notes

Appointment of R. R. Worthington as assistant sales manager, Bagpak Division, International Paper Company, was announced recently. O. W. McDuffie will take Mr. Worthington's place as sales manager of the Machinery Sales and Service Department of the Bagpak Division.

Chain Belt Company of Milwaukee has announced the appointment of four new sales engineers to their district sales office organizations.

William C. Beals will become a member of Chain Belt Company's Buffalo District Sales Office. Robert B. Hill has been assigned to the firm's Portland, Oregon, District Sales Office. James W. Mueller will be working in the Chicago District Sales Office. Dabney P. Murrill has been assigned to the Atlanta District Sales Office.

W. J. Kallmeyer

Walter J. Kallmeyer has been appointed chief engineer of the Standard Steel Corporation, Los Angeles, Calif.

Mr. Kallmeyer was formerly works manager of Blaw-Knox Co., Blawnox, Pa., having started as design engineer with that company in 1930. He brings to his new position an extensive engineering background in heavy machinery, plate, and structural fabrication.

Raybestos-Manhattan, Inc., announced that the Board of Directors made the following appointments:

W. Ward Kievit, treasurer, succeeding George R. Weber recently deceased. William S. Simpson, general manager of Raybestos Division at Stratford, Conn., succeeding Robert B. Davis recently retired. Mr. Simpson is also secretary and a director of the corporation. Osborn H. Cilley, general manager of U.S. Asbestos-Grey-Rock Division at Manheim, Pa., succeeding George R. Weber. Mr. Cilley is also a vice-president and director of the corporation. S. R. Zimmerman, Jr., assistant general manager of U.S. Asbestos-Grey-Rock Division at Manheim, Pa., joined that division in 1932 and has been assistant sales manager and manager of Automotive and Industrial Equipment Sales, and director of Friction Material Research and Development for the corporation.

G. F. DeCoursin has been appointed general sales manager of The Four Wheel Drive Auto Company, Clintonville, Wis., it was announced recently.

A consolidated sales office serving Texas and the Southwest has been opened in Dallas, Texas, by International Paper Company.

The new office is located in the recently completed Fidelity Union Life Building, 1511 Bryan Street, Dallas 1, Texas.

Several of the International Paper divisions will be represented in the new sales office. J. W. Dennett, formerly of the Chicago office, will represent Southern Kraft Paper and Bags, and H. T. Patton will be in charge of Texas sales for the Bagpak Division.

E. S. Elgin has been made sales manager of the Waterproof, Polyethylene and Crinkled Paper Products Department of the Specialty Division of the Chase Bag Company, it was announced recently.

The Pennsylvania Crusher Company, 1700 Liberty Trust Bldg., Philadelphia 7, Penna., announced the appointment of The Mine and Smelter Supply Company, 1422 - 17th Street, Denver 17, Colo., and 1515 - 11th Street, El Paso, Texas, as representatives in New Mexico, Arizona, Western Texas, Colorado, Western Kansas, Nebraska, and South Dakota, and Eastern Wyoming and Montana.

The Alliger and Sears Company, 2203 Fannin Street, Houston, Texas, will represent Pennsylvania Crusher in Central and Eastern Texas and Southern Louisiana; and the Tampa Armature Works, Inc., 401 S. Morgan Street, Tampa 1, Fla., will represent Pennsylvania Crusher in Florida and Southern Georgia.

George R. Weber, vice-president, treasurer and a director of Raybestos-Manhattan, Inc., and general manager of its U. S. Asbestos Division plant at Manheim, Pa., died recently at his home in Lancaster, Pa.

Harold E. Kleintop has been appointed manager of Wire Product Operations of Hewitt-Robins, responsible for production and sales at the Philadelphia plant. This plant produces wire screen cloth and open-mesh wire conveyor belts.

Hewitt-Robins acquired its Philadelphia plant in 1952 from the Korb-Pettit Wire Fabrics and Iron Works, Inc. Since then, production capacity has been increased 40 percent. Mr. Kleintop was vice president and chief engineer of the plant when it was sold to Hewitt-Robins.

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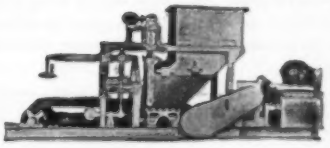

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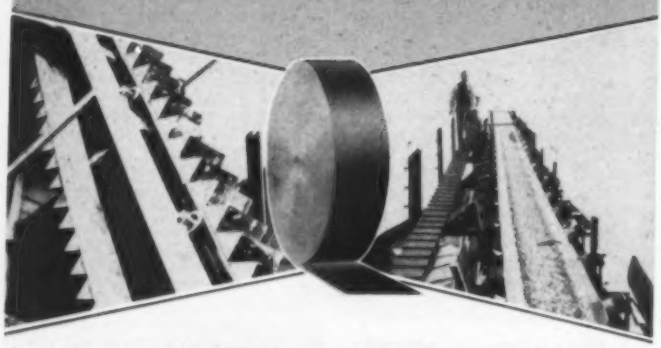

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REPUBLIC RUBBER DIVISION

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INDUSTRIAL RUBBER PRODUCTS

Thomas E. Burns has been appointed factory representative for Macwhyte Company in Houston, Texas. He will represent the wire rope manufacturer in the Houston territory including an area in Louisiana.

The installation of two new, large conveyor belt presses, one 72-in. and one 60-in., marks the completion of the $250,000 belt department expansion at Quaker Rubber Corporation, Division of H. K. Porter Company, Inc., Philadelphia, Pa.

St. Regis Paper Company has announced the start of production by its new kraft pulp, paper and board mill at Jacksonville, Fla., having a capacity to produce 100,000 tons of paper annually. This addition raises the company's capacity for the production of kraft paper and board to 560,000 tons a year.

Dr. Robert W. Cairns, assistant director of research for Hercules Powder Company, has been named vice-chairman of the Research and Development Board, a staff agency of the Secretary of Defense, which guides the weapons development program of the Army, Navy, and Air Force.

Dr. Cairns will be on loan to the government for one year, serving without compensation.

Baldwin-Lima-Hamilton Corporation, Construction Equipment Division, Lima, Ohio, announces the opening of a new district office and warehouse at 1503 Northside Drive, N.W., Atlanta, Ga. The Atlanta location replaces the office-warehouse at Memphis, Tenn. Fred L. Maus will continue as district manager of the territory.

Effective January 1st, 1953, Mr. Thomas S. Walsh, Hillsdale, New Jersey, will become the new Factory Representative of The Rust-Oleum Corporation, 2425 Oakton Street, Evanston, Illinois, for its complete line of Rust-Preventive Products in Metropolitan New York and the Northern New Jersey trade area.

Mr. Walsh's territory will include New York, Bronx, Queens, Kings, Nassau, Richmond, Suffolk, Orange, Rockland, Ulster, Dutchess, Sullivan, Putnam and Westchester Counties in New York State; and the counties of Sussex, Passic, Bergen, Morris, Essex, Hudson, Somersey, Union, Middlesex and Monmouth in New Jersey and Fairfield County in Connecticut.

Gravity and belt conveyors are available on lease on a new rental plan announced by The Rapids-Standard Company, Inc., Grand Rapids, Mich.

Under the plan, conveying equipment is installed by The Rapids-Standard Company, Inc., for an agreed-on charge. A fixed monthly sum covers use of the equipment. Insurance, maintenance, repair and personal property tax are paid by the conveyor manufacturer.

William F. Koch, manager of sales in the Salt Lake City, Utah, office of Hercules Powder Company for the past 22 years, retired December 31 after 38 years' service.

L. W. Ben Early, assistant manager, will succeed Mr. Koch as manager.

GREATER UNIFORMITY of PERFORMANCE IS ASSURED with NOPCO ERTRANE* C

Every batch of Nopco* Ertrane C – the *most economical* air-entraining agent on the market – is carefully tested to assure uniformity of performance when this agent is added to portland cement. ASTM methods for determining entrained air and water retention properties are standard control tests for all production.

We are not content with having produced an outstanding additive which fully satisfies all the requirements of ASTM Specification C226-50T; we see to it that every pound of Ertrane C is "right up to the mark". Thus you can use Ertrane C with confidence, certain that the standard of quality is maintained without variation from bag to bag.

This specifically formulated air-entraining agent imparts *excellent durability* to concrete, plus plasticity (through air formation), water repellency, and desirable qualities that increase workability.

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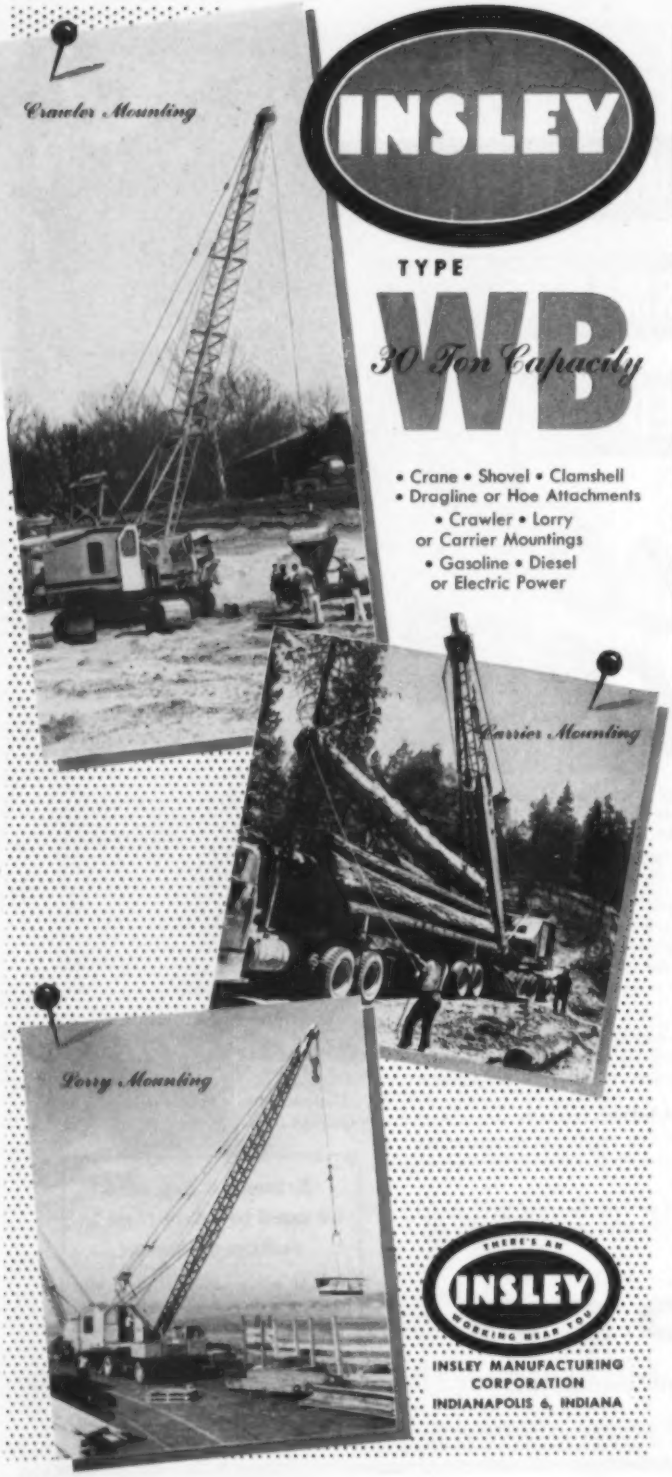

Appointment of Gilbert C. Strege as president of The Baker-Lull Corporation, Minneapolis, Minn., manufacturer of construction and materials handling equipment, was announced. In confirming the appointment, the board of directors also approved the change in company name from the Lull Manufacturing Corporation.

Also named in the announcement as newly-elected Baker-Lull officers are: LeGrand H. Lull, G. B. Davis, John A. Matousek, C. N. Sumwalt, A. C. Smith, directors; Patrick Lamb and Harry Conklin, vice presidents.

Percy J. Ebbott, president of the Chase National Bank, was elected a director of the International Paper Company, it was announced by John H. Hinman, president. His election fills the vacancy caused by the resignation of Winthrop W. Aldrich, former chairman of the Chase National Bank and now U. S. Ambassador designate to Great Britain.

Robert J. Stevens has been appointed sales manager of the Multiwall Division of the Chase Bag Company it was announced recently.

Mr. Stevens has been associated with the Chase organization since 1945. Prior to his transfer to the general sales department in Chicago in November of 1950, he was sales manager of the Buffalo-New York branch.

G. N. Burns, formerly in the Chicago General Sales Office, has been transferred to New Orleans as regional sales manager of the Multiwall Division.

G. M. Wallace, manager of the Bailey Meter Company Denver district, has been appointed an assistant sales manager with headquarters in Cleveland. He will supervise the sale of meters and control equipment to the process industries.

W. Denis Kendall, executive vice president of Brunswick Ordnance Corporation, a subsidiary of Mack Trucks, Inc., was appointed vice president of Mack Manufacturing Corporation and has assumed the responsibility for all manufacturing at all Mack plants.

The Thew Shovel Co., Lorain, Ohio, has elevated three of its engineers to new positions. R. H. Zeilman has been appointed director of engineering, M. L. Sheetz, chief executive engineer and O. Von Mehren, chief design engineer.

Herbert E. Fenton has been named Pittsburgh area mining sales and service engineer for the Carboloy Department of General Electric Company, it was announced.

He will work in the southwestern section of Pennsylvania. Formerly, Mr. Fenton was associated with the Cardox Corporation, Pittsburgh.

The appointment of Paul Harris as district manager for the Schield Bantam Company, Waverly, Iowa, has been announced. His territory will include eastern Tennessee, North and South Carolina, Alabama, Georgia and Florida.

legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

The following is a continuation of last month's review of unusual court decisions involving nonmetallic minerals producers. Readers may profit by filing this article for future reference.

Legal Rights of Purchaser

First, I shall review a leading higher court decision which clearly illustrates and established a dependable rule by which a seller of nonmetallic minerals may decide whether or not he is liable on promises made by his agent or salesman. This is important law because occasionally a dissatisfied purchaser may attempt to avoid his legal responsibilities by falsely accusing a seller's agent or salesman of misrepresenting actual facts. With a dependable legal rule at hand to determine whether or not a purchaser has a valid complaint, the seller may fortify his legal position by disrupting the purchaser's contentions.

However, the courts have laid down positive law that a buyer may rescind a contract obtained by the seller or his agent, as a result of direct or indirect fraud, misrepresentation, coercion, undue influence, duress, or threats. Moreover, a contract is invalid when made without proper authority of an agent or employee, or while an authorized employee is mentally deficient, intoxicated, under influence of drugs, or under legal age. Also, certain kinds of contracts are void and unenforceable, such as those against public policy, prohibited by a state statute, and tending to effect immorality, or having an illegal object.

Probably the most common legal reason a purchaser may endeavor to cancel a sale contract arises from fraud on the part of the seller or his authorized representative. Also, sellers should know exactly what constitutes "fraud" of his employees. By this rule if he knows that his employee has committed no fraud, he may with confidence withstand or avoid a suit. The higher courts established this dependable rule: In order that a purchaser may rescind a sale contract on the ground of fraud, the purchaser positively must prove the following facts: (1) There must be proof of the conduct—acts, language, or silence—on the part of the seller, or his legal representative, which amounted to concealment of material facts regarding the merchandise from the seller. (2) These facts must have been known to the seller or his agent at the time the transaction was completed. (3) The truth concerning these facts must have been unknown to the purchaser at the time he signed the contract. (4) The acts of the seller's agent must have been done with the intention, or at least with the expectation, that the purchaser would be influenced. (5) The conduct or promises of the seller or his agent must have been relied upon by the purchaser who was led to act upon it.

Hence, it is well established law that although a seller or his agent practices deceit, the buyer had no legal recourse if he fails to prove that actually he believed the deceitful or fraudulent statements were true, and that these statements or acts were made before the sale was signed.

In some instances where the seller has reason to believe that his silence misleads the purchaser, this is an element of fraud. For illustration, in a recent case, (101 Iowa 457), the court explained that mere silence of a seller in regard to facts which it is not his duty to disclose is not fraudulent; but where such silence is misleading to the purchaser, the seller is duty bound to explain all facts.

Anti-Trust Laws

It is well known that laws against "trusts", monopolies and restraint of trade are unlawful. Many readers are uncertain whether or not a contract is illegal by the terms of which a seller of nonmetallic minerals gives a purchaser the exclusive right to sell such products in a restricted and certain territory or area. Therefore it is important to make note of a rule established by the Supreme Court of the United States, as follows: A contract which violates anti-trust laws and therefore is unlawful restraint of trade is one which (1) imposes undue hardships upon the person restricted;

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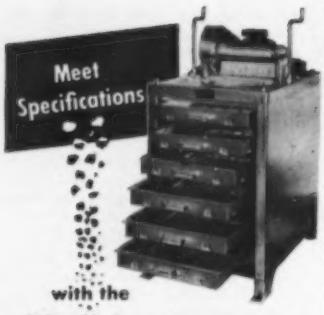

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6. Few moving parts
7. Sturdy construction
8. Size range 4" to 200-mesh

GILSON SCREEN CO.
BOX 186 • MERCER, PENNA.

MARTINDALE

PROTECTIVE MASKS

PLACE HEAD-BAND WELL UP AROUND HEAD TO KEEP FROM SLIPPING DOWN
PRESS NOSE TABS IN CLOSE AGAINST FACE TO HOLD PAD AGAINST TOP NOSTRILS
PRESS EDGES OF FACE PLATE DOWN TO FIT FACE SNUGLY

Weigh less than ⅛ ounce. Excellent Protection against non-toxic dusts except free silica. Replaceable cotton pads are inexpensive and sanitary.
Martindale Protective Masks .....$.30 ea.
No. 1 Refills (Standard weight) ..... .02 ea.
No. 2 Refills (heavyweight) ..... .02½ ea.
Masks packed individually. Refills packed 25 to envelope. No. 2 (heavyweight) Refills contain twice as much filtering cotton as No. 1.

DISCOUNTS

Less than $10.00 list .....Net
$10.00 to $24.99 list 10%
$25.00 to $99.99 list 15%
$100.00 and over 20%
Minimum, charge account or C.O.D. $2.00
Minimum, cash with order $1.00

We pay delivery charges on Cash Orders.
Send for new 64-page Catalog No. 29 of Maintenance, Production and Safety Equipment.

MARTINDALE ELECTRIC CO.
1363 Hird Ave. Cleveland 7, Ohio

(2) or has for its purpose to create a monopoly; (3) or is intended to control prices; (4) or to limit production; (5) or unreasonably restrict the sale or use of any merchandise; (6) or is based on a promise to refrain from competition, and is not ancillary either to a contract for the transfer of good-will or merchandise. All other contracts which appear to be in restraint of trade contracts are valid.

For instance, in *Harris v. Marra*, 29 Atl. (2d) 64, it was shown that a company is engaged in the manufacture and sale of stone-cutting apparatus. This company made a contract with a distributor which contained a clause to the effect that the company or manufacturer would not sell similar equipment or apparatus to other firms and competitors in the same territory. The higher court had occasion to decide the validity of this contract. This court held the contract valid and not violative of anti-trust laws and said:

"Neither do we find any merit in the suggestion that the agreement tended to create a monopoly or control prices. Certainly a manufacturer can operate through distributors, choose his agents, and prescribe how the business shall be operated without creating a monopoly."

Contract Not Accepted

All higher courts hold that an "offer" never is a valid contract until the offer is unconditionally accepted. Moreover, an "offer" cannot be lawfully accepted except by an employer or his authorized agent. And the higher courts hold that an ordinary salesman is not an authorized agent. All higher courts hold that a salesman's sole implied legal authority is to accept a contract or order, and send it to his employer for approval. If the employer is not satisfied with the offer submitted, he may reject the proposal or simply refuse to deliver the merchandise without sending the buyer any notification. Conversely, the buyer is privileged to send his cancellation at any time before the salesman's employer acknowledges the order.

For illustration, in *Sanders v. Seaboard*, 230 Pac. (2d) 849, it was shown that a purchaser ordered a quantity of rock products merchandise from a salesman. The purchaser's credit was not established, and the salesman required a money deposit with the order. The buyer gave the salesman the required cash deposit, and both the salesman and the purchaser signed a contract of sale which specified the date when shipment should be made, and distinctly stated that no cancellation would be accepted.

The salesman mailed the contract or order immediately to his employer, who failed to acknowledge or accept it. Ten days after the contract or order was signed, the purchaser decided that he did not want the merchandise. He wrote to the salesman's employer and cancelled the order, and requested that the money he had paid the salesman be returned. The salesman's employer answered this communication but refused to cancel the order, or return the purchaser's deposit. The buyer filed suit to recover the deposit.

The higher court held the buyer entitled to cancel the order, and that the seller was bound to return the buyer's deposit because no valid contract was completed. This court explained that a buyer of merchandise may without liability cancel an order given a salesman, if the cancellation reaches the salesman's employer before the latter acknowledges receipt of the order or accepts the contract.

For comparison, see *Willis v. Stone*, 41 So. 675. Here a buyer gave an order to a salesman in September for a quantity of products. The salesman's employer failed to acknowledge receipt of the order, and in November the purchaser cancelled the order. The seller filed suit to recover damages from the purchaser, on the grounds that his failure to notify the purchaser for three months that the products would not be shipped plainly indicated that he intended to accept the order and prepare the materials for shipment. However, the court held the buyer fully within his legal rights in cancelling the order, under these circumstances, saying:

"There is no time, from the time such an order is received until it is accepted, that the person giving the order cannot countermand it. It is plain that mere silence on the part of the plaintiff (seller), after receiving the order, without any act tending to show an acceptance, would not cut off the right of defendant (purchaser) to cancel the order."

Law of Taxation

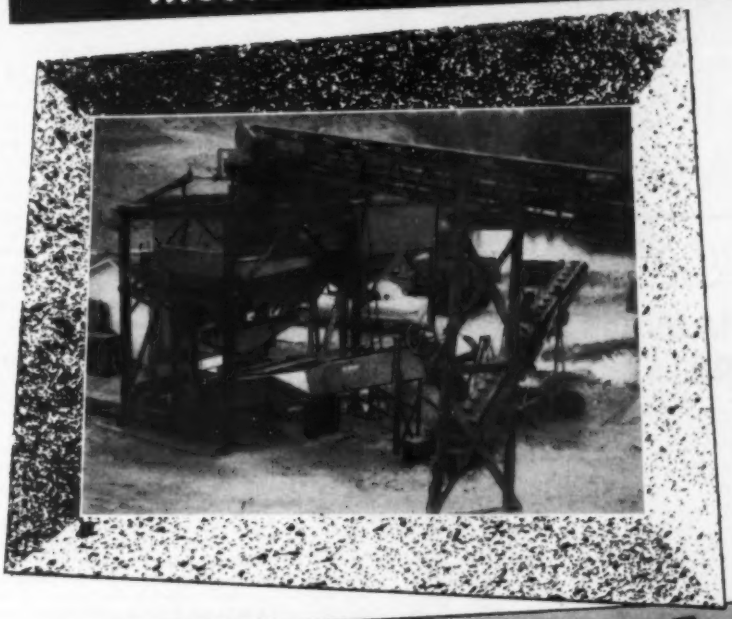
Very frequently this legal question arises: Can a state tax nonmetallic minerals being shipped through the state?

The answer is: A state cannot tax merchandise or products shipped in interstate commerce, unless the materials are permanently stopped or stored in the state.

For example in the leading case of *Walling v. Jacksonville Company*, 63 S. C. R. 332, the Supreme Court of the United States held that a "pause" or "temporary" stop of goods in a state does not change the interstate commerce character of the shipment. However, where the merchandise is stored and later sold to purchasers in the state the state authorities may tax it. Also see *Higgins v. Carr*, 63, S.C.R. 337. Here the Supreme Court of the United States held that if nonmetallic minerals are shipped from outside the state and stored until sold, the shipper is engaged in intrastate commerce transactions, and therefore subject to state taxation.

Other courts have held that if nonmetallic minerals are stopped in transit in a state for sorting or distribution, the state may tax the materials. This is so because the shipment is stopped for a definite and unnecessary purpose. On the other hand, if the materials are stopped by necessity, for example, because of a flood, lack of cars, or transportation facilities, or due to a strike, or by government order, the state cannot tax the materials.

Unusable Material Made Saleable ...Good Material Made Better



with EAGLE Water Scalping Tank and Fine Material Washer team!

WAGNER ICE & GRAVEL COMPANY, Harbor Beach, Mich., had a ready market for aggregate in a close radius of their deposit. BUT, the material was not always acceptable.

Some time ago they installed an Eagle 10'x12' Water Scalping Tank for removal of excess water and preliminary classification and an Eagle 29"x22' Fine Material Screw unit with 24" dia. screw flights, and adjustable long weir, for washing, final classifying and dehydrating material.

This **practically** solved their problem. With Eagle "Follow Through" Engineering on the job, some of the screw flights were replaced with paddle type flights to break up soft particles and now their problem is **fully** solved.

All the material produced is sold to contractors and concrete block plants in the area. The results more than justified the investment — usually the case with Eagle equipment . . . May we send Catalog 47?

"Bust" Frozen Ground With An EAGLE BREAKER BALL!

Four standard sizes: 1500 to 4000 lbs. Replaceable hook. Effective shape. Easily hung from crane or shovel bucket. Ask for Bulletin 252.

LEADERS IN AGGREGATE WASHING AND CLASSIFYING EQUIPMENT FOR HALF A CENTURY

133 Holcomb Ave., Des Moines, Iowa

EAGLE IRON WORKS

traffic news

CENTRAL TERRITORY RAILROADS
Freight Traffic Committee

Docket 89390 (2)—Proposed to establish on stone, crushed, or stone screenings, in bulk, in open-top cars, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Marion, Ohio, to Detroit, Mich., 201 cents net ton.

Docket 89394 (1)—Proposed to establish a rate of 221 cents per gross ton on stone, fluxing, furnace or foundry, melting or refractory, unburned, in bulk, in open-top cars, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Georgia, Ind., to Middletown, Ohio.

Docket 89397 (1)—Proposed to establish on stone, crushed, in open-top cars, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full visible capacity, actual weight will apply from Plum Run, Ohio, to Piketon, Ohio, 105 cents per net ton. Motor competitive to expire one year after effective date unless sooner cancelled, changed, or extended. Applicable only on traffic having origin, destination, and entire transportation within the state of Ohio. Includes ExParte 175-B increase.

Docket 89399 (1)—It is proposed to establish on stone, crushed, in open-top cars not protected by tarpaulin or other protective covering, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. On shipments in closed cars, on Ohio intrastate traffic, rates will be as provided in Rule 10, page 7 of B.&O. Railroad tariff 453, Ohio 6483, ICC 24062 from North Baltimore, Ohio, to Teays, Ohio, 226 cents per net ton.

Docket 89407 (1)—Proposed to revise rates on stone, fluxing, furnace or foundry, melting or refractory, unburned, in bulk, in closed cars, carload, minimum weight 90 percent of marked capacity of car, except that when cars are loaded to full cubical or visible capacity, actual weight will apply from McVittys and Carey, Ohio, and such other points in the "northwest Ohio group" from which rate of $1.71 gross ton is published, to Detroit, Mich., 199 cents gross ton.

GENERAL FREIGHT TRAFFIC COMMITTEE
Eastern Railroads

Bulletin G-7414 (Shipper)—Proposed to establish a rate of 44 cents per hundredweight on magnesite, dead-burned, carload, minimum weight 30 tons, from Millville, W. Va., to Steelton, Ky., subject to ExParte 175-B increase.

Bulletin G-7426 (Carrier)—Proposed to establish on slag, crushed or crushed commercial, product of iron or steel furnaces, unsuitable for further extraction of metals, in open-top cars, carload, minimum weight 90 percent of marked capacity of car, from Ashland, Ky., to Pulaski, Va., $2.92 per net ton; to Galax, Va., $3.04 per net ton, subject to ExParte 175-B increase.

Bulletin G-7322 (Carrier)—Proposed to establish on limestone, natural, ground or pulverized, in bulk, in open-top equipment, carload, minimum weight 90 percent of marked capacity of car, except that when car is loaded to cubical or visible capacity, actual weight will apply from Buffalo, N. Y., to Portageville, N. Y., $1.61 per net ton, subject to ExParte 175-B increase, to be issued to meet motor truck competition.

Bulletin G-7387 (Shipper)—Proposed to establish under (A) limestone, natural, ground or pulverized (unburned) (see note) in open-top cars, not protected by tarpaulin or other protective coverings. Screenings, crushed stone, not ground or pulverized (unburned) or stone dust, un-

SYNTRON

GASOLINE HAMMER ROCK DRILLS

Heavy Duty • Self-Contained

Simplified drilling with self-contained unit

Model RD-51

Deliver over 2000 powerful blows per minute—with automatic drill bit rotation—with exhaust pressure to blow out holes down to 24"—no air compressor nor accessories needed. Portable, economical—cut job time. Write for complete catalog data.

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COMPLETE CRUSHING PLANTS
designed and equipped by FARREL-BACON

Farrel-Bacon provides a complete engineering service, including design of plant and supplying all equipment from primary crusher to bin gate. Jaw-type crushers are available in sizes from 60" x 48" to 10" x 7" Write for complete information.

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ANSONIA, CONNECTICUT

BA-5

burned, in open-top cars not protected by tarpaulin or other protective covering.

(B) Limestone, natural, ground or pulverized (unburned) (see note) in closed cars or in open-top cars protected by tarpaulin or other protective coverings. Screenings, crushed stone, not ground or pulverized (unburned) or stone dust, unburned, in closed cars or open-top cars protected by tarpaulin or other protective coverings; carload, minimum weight 30 tons, from Narlo and Maple Grove, Ohio, to the following points:

	Rates per Net Ton (A)	(B)
Beverly, Cassity, Dailey, Faulkner, Montrose, Parsons, W. Va.	$3.59	$4.08
Cheat Bridge, W. Va.	3.83	4.32
Webster Springs, W. Va.	4.07	4.57

Subject to ExParte 175-B increase.

Note: Rates named will also apply on limestone, ground or pulverized, when containing not in excess of 3 percent of other minerals either physically or otherwise added.

WEEKLY DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION PROPOSALS

Docket A-13018 (A)—Proposed to establish a rate of 505 cents per net ton, on limestone, ground or pulverized, in bags, in box cars, carload 30 tons, from Russellville, Ala., to Gary, W. Va. Not subject to X-162-6-8 increases.

Docket A-13150 (B)—Proposed to establish on ground or pulverized sand, carload, in closed cars, or open-top cars protected, minimum weight 90 percent of marked capacity of car to Anderson, S. C., from Harvard, 598 cents; and from Glass Rock, Ohio, 587 cents per net ton, not subject to X-162-6-8.

Docket A-8890 (ERR (S) C-Sfa 5895)—Proposed to establish on limestone, natural, ground or pulverized, unburned, 30 tons, from Gibsonburg, Ohio, and other Northwestern Ohio group 1 origins to Springfield, Ky., 408 cents in closed cars; 359 cents net ton in open cars, not subject to X-162-6-8 increase.

Docket A-8996 (IFA Application 511-162)—Proposed to establish through rates on agricultural limestone, also ground limestone dust and limestone, ground, carload, Valmeyer, Ill., to points in Kentucky and Tennessee. Through rates are based on Cairo, Ill., combination. Representative rates not subject to X-162-6-8 are:

Auburn, Ky.	360
Richmond, Ky.; Somerset, Ky.	426
Chattanooga, Tenn.	393
Beaver Dam, Ky.	349
Nashville, Tenn.	355

SOUTHWESTERN FREIGHT BUREAU

Docket 63095—Proposed to establish a rate of $2.82 per net ton in closed cars and $2.65 per net ton in open cars, on limestone, lime rock, and chats, from Marlo, Mosher, and Ste. Genevieve, Mo., to Chicago, Ill., not subject to 162, 166-68 increase.

Docket 63236 (C)—Proposed to establish on gypsum, crude or crushed (not ground), from Highland, Ark., to Okay Junction, Ark., minimum 90 percent of marked capacity of car, but not less than 40 tons, rate of 7½ cents, not subject to X-162, 166, 168.

TEXAS LOUISIANA FREIGHT BUREAU

Docket X-7333—La. (S)—Proposed to establish on limestone, crushed, ground, or

What bulk materials do you handle?

Versatile FARQUHAR Trough Conveyors will move it faster with less labor!

Frank Casilio & Sons, a concrete block company in Bethlehem, Pa., moves aggregates from hopper-bottom cars to storage bins, with the aid of this Farquhar Conveyor and Car Unloader.

A mid-west firm finds its Farquhar Conveyor, with the Farquhar Car Unloader, makes short work of unloading phosphate from cars to storage piles.

AGGREGATES, dirt, coal, chemicals, wet cement—Farquhar moves them all, saving you manpower and time. Farquhar Trough Conveyors are dependable, engineered to move material efficiently and to give you trouble-free service for years. Their low feed end makes them perfect for unloading hopper bottom cars, in combination with Farquhar Car Unloaders. Where loading is done by hand, the low feed end permits scraping of material to the carrying belt. If you handle *any* bulk material, Farquhar Trough Conveyors can save you money by saving you time and labor . . . and pay for themselves in a short time.

Whether you move coal, gravel, sand, aggregates, cartons, boxes, bundles, bales, or any kind of bulk or packaged materials—horizontally or from floor to floor—Farquhar can cut your handling costs to rock bottom! One or more of the complete line of Farquhar portable, semi-permanent power-belt or gravity conveyors will solve your handling problems. Our engineers will be glad to consult with you . . . at no obligation!

OLIVER Farquhar CONVEYORS

POWER-BELT AND GRAVITY CONVEYORS

FREE! "Owners Report"—a booklet of case histories of money-saving conveyor installations.

MAIL COUPON FOR YOUR COPY

THE OLIVER CORPORATION
A. B. FARQUHAR DIVISION
Conveyor Dept. A-36, York, Pa.

Gentlemen:
Please send me my free copy of "Owners Report."

Name .....
Firm .....
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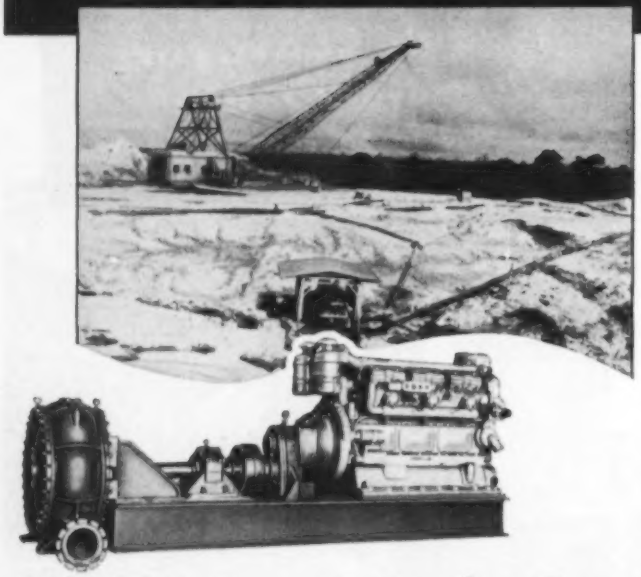
Here's the most efficient dredge pump ever built . . . mining bauxite in British Guiana



MORRIS Type G Dredge Pump

"Delivers more material—in a shorter time—at lower cost." This is the one comment we consistently receive from all over the world on the Morris Type G Dredge Pump.

What makes the Type G so efficient is its design and construction—the end result of 89 years' experience in specialized pump manufacture. The patented impeller design balances casing pressure—eliminates points of unusual wear. All parts wear evenly, last far longer. Critical sections of the casing are considerably thickened to greatly increase casing life. Specially designed bearings stand up under the severest kinds of hydraulic or mechanical loads.

Because of its special bearings, the Type G can run at considerably higher speeds than normally expected of dredge pumps—and can be direct-connected to high speed Diesel engines. For example, at the Demerera Bauxite Company of British Guiana the Morris Type G shown above is driven by a Caterpillar D-386 engine through a Cotta 2 : 1 reduction gear.

Speed—output—economy . . . you get all 3 with a Morris Type G. Let our engineers help you select the right pump size for your particular needs. No charge or obligation.

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Branch Offices in Principal Cities

MORRIS *Centrifugal Pumps*

pulverized, from New Orleans to points on the N.O. and L.C. Railroad, carload, in closed cars, minimum weight 40 tons, the following rates per net ton, subject to X-175-B from New Orleans, La.; to Buras, Empire and Nairn, La., 143 cents; to Deer Range and Port Sulphur, 135 cents; to Myrtle Grove, 127 cents. Rates applicable only as proportional rates on traffic originating at points in Southern territory.

FREIGHT TRAFFIC COMMITTEE
Trunk Line Territory Railroads

Docket TL-M-2619 (Carrier)—Proposed to establish on stone, crushed, carload, in open-top cars, not protected by tarpaulin or other protective covering, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Snow Flake, W. Va., to Leivasy, W. Va., $1.25 per net ton, not subject to ExParte 175-B increase. To be issued to meet motor truck competition and to apply on West Virginia intrastate traffic and to expire with December 31, 1953.

NORTH PACIFIC COAST FREIGHT BUREAU

Docket Nc-3086 (S)—Request rate of 7½ cents per hundredweight on sand and gravel, carload, Umatilla, Oreg., to Dayton, Wash., minimum 50 tons.

PACIFIC SOUTHCOAST FREIGHT BUREAU

Docket X-3429 (S)—It is proposed to request a rate of 23 cents, minimum 50 tons, on rock, perlite, broken, crushed or ground, dried or not dried, not expanded, carload, from Superior, Ariz., to West Glendale, Norwalk, and Paramount, Calif.

WESTERN TRUNK LINE COMMITTEE

Docket X-E-41-1715 (S)—Proposed to establish on stone, crushed, carload, minimum weight 90 percent of marked capacity of car, except that when weight of shipment loaded to full visible capacity of car is less than 90 percent of marked capacity of car, actual weight shall apply, but in no case shall the minimum weight be less than 20 tons. From Alexandria, S. D., to destinations in Indiana, Michigan, Ohio, New York, Pennsylvania, and Ontario, named in items 1790, 1805, and 1810 of Western Trunk Line tariff 134-N. Representative points shown below:

To	Proposed Rates in Cents per Ton of 2000 lb. Open	Closed
Buffalo, N. Y.	694	1198
Cleveland and Sandusky, Ohio	601	668
Detroit, Mich., Toledo, Ohio	496	596
Indianapolis, Ind.	582	629
Walkerville and Windsor, Ont.	756	856

Rates subject to X-175 increase.

Docket X-E-41 1719 (S)—Proposed to establish on crushed stone, as described in item 65 of C. B. & Q. GFO 16060-Q in lots of 10 cars or more from Cedar Creek, Nebr. (in cents per net ton),

To	
Halloran and Hastings, Nebr.	
Jeffers, Nebr.	134 cents
Inland, Nebr.	129 cents

Rates include X-162-6-8 incr. and are subject to only X-175.

"WHEN REBUILDING THE ROOSEVELT TRAIL WE GOT

more gravel for less money with our AUSTIN-WESTERN '201' Portable Crushing and Screening Plant"

...says contractor Frank Rossi of Gardiner, Maine

"Thanks to our Austin-Western '201' crusher we made our own surfacing material for this new highway . . . cutting time and costs by crushing and screening gravel right on the job."

Such reports are not surprising, because this Austin-Western '201' portable crushing and screening plant is really tops. It excells in high production and low operating cost, because of these advantages

Easily portable with high output capacity. Fed by either shovel-loading hopper or feed conveyor. Extra-large screening capacity. Shaft and V-belt drives for all principal units. Anti-friction bearings. Large, oversize conveyors. Simplified design and fewer moving parts for low cost maintenance.

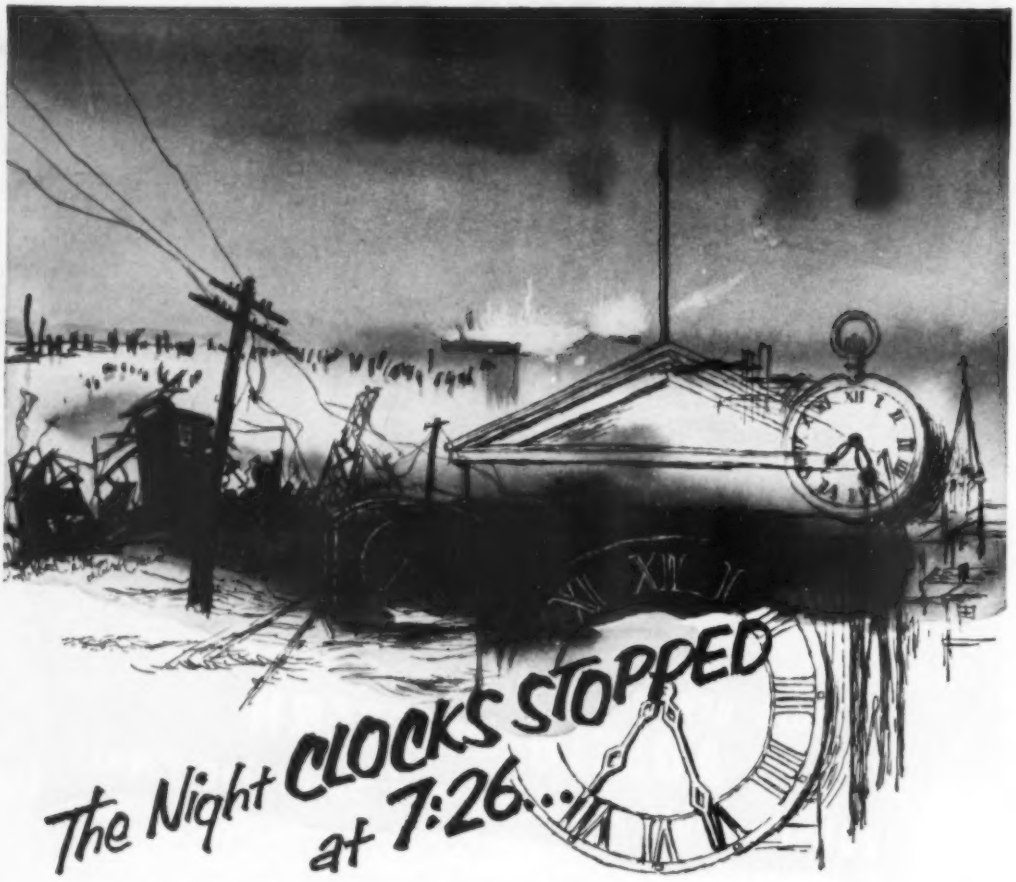
There are Austin-Western crushing plants for any requirement you might have . . . small portable units with single crusher and screen, multiple portable units, or stationary crushing and washing plants. We have just the plant to fit your requirements . . . each basically designed and engineered to give you maximum production at minimum cost.

Note: Austin-Western crushers are now being engineered and manufactured in Lima, Ohio enabling us to maintain steady, top-quality production of crushers.

Austin-Western
CRUSHING, SCREENING and WASHING EQUIPMENT

BALDWIN-LIMA-HAMILTON
BLH
Construction Equipment Division

BALDWIN-LIMA-HAMILTON CORPORATION
Construction Equipment Division
LIMA, OHIO, U.S.A.



Some 9,500 people were in South Amboy, N. J., that drizzly evening in 1950. At the waterfront, longshoremen were transferring the last of 12 freight cars of ammunition to lighters that would carry it to a waiting vessel in Raritan Bay.

But the City Hall clock never got to 7:27—and the freighter's deadly cargo never got loaded. Explosions shattered windows over a radius of 12 miles; and hundreds of people looked at their arms and legs and saw that flying daggers of glass had stabbed them.

At dawn, 312 of the injured had been counted.

★ ★ ★

Such disasters have happened many times before in America. They could happen again. And *if* they do—and *when* they do—there must be blood plasma on hand to take care of the injured. For blood saves lives!

But blood cannot be mined or manufactured. It must come from the veins of healthy men and women. Men and women who feel concern for a suffering neighbor. So give blood—now! Whether your blood goes for Civil Defense needs, to a combat area, or to a local hospital—this priceless, painless gift will some day save an American life!

Give Blood Now

CALL YOUR RED CROSS TODAY!

National Blood Program

Business Executives! √Check These Questions!

If you can answer "yes" to most of them, you—and your company—are doing a needed job for the National Blood Program.

- ☐ Have you given your employees time off to make blood donations?
- ☐ Do you have a Blood Donor Honor Roll in your company?
- ☐ Have you set up a list of volunteers so that efficient plans can be made for scheduling donors?
- ☐ Have you arranged to have a Bloodmobile make regular visits?
- ☐ Has your management endorsed the local Blood Donor Program?
- ☐ Have you informed employees of your company's plan of co-operation?
- ☐ Was this information given through Plant Bulletin or House Magazine?
- ☐ Has your company given any recognition to donors?
- ☐ Have you conducted a Donor Pledge Campaign in your company?

Remember, as long as a *single* pint of blood may mean the difference between life and death for *any* American . . . the need for blood is *urgent!*

Power-Packed 100% Hydraulic Performance

Large photo shows position of bucket when at extreme height above ground. Two small photos illustrate how, in excavation or loading, bucket follows slope of material—getting a full bucket with every stroke. Dempster-Diggster digs-in 15 inches below grade and digs out a 15 to 18 foot bank.

DEMPSTER-DIGGSTER OFFERS YOU BIG SHOVEL HYDRAULIC PERFORMANCE IN A SMALL, MOBILE UNIT...

The Dempster-Diggster is the only small shovel that offers you all these basic and important features of big shovels—*Simultaneous and Independent Crowd and Hoist . . . Hydraulic Crowding . . . Hydraulic Hoisting . . . Variable Crowd Action at any Dipper Position . . . Changeable Buckets.*

With these big shovel features, plus truck speeds on the job, and to and from jobs, the Dempster-Diggster enables you to speed up production for greater profits on jobs requiring excavation or loading!

Write for complete facts on this revolutionary, power-packed shovel. A product of Dempster Brothers, Inc.

DEMPSTER DIGGSTER
TRADE MARK REG.

DEMPSTER BROTHERS
243 N. Knox, Knoxville 17, Tennessee

No matter how you look at it...

Hendrix

DRAGLINE BUCKETS

ARE YOUR BEST BUY!

3/8 to 40 Cubic Yards

A TYPE & SIZE FOR EVERY DIGGING PURPOSE

HENDRIX Lightweight DRAGLINE BUCKETS

Hendrix Buckets May Be Special Ordered WITHOUT PERFORATIONS

HENDRIX MANUFACTURING CO., INC.

MANSFIELD – LOUISIANA

April, 1953

THE CONCRETE MANUFACTURER

A SPECIAL SECTION OF PIT & QUARRY

FOR BETTER MIXING AT LOWER COST, USE

STEARNS MIXERS

Charging side of mixer. Oil-retaining gear housing is optional equipment.

DRUM CONSTRUCTION . . . Rolled steel shell is continuously welded to heavy steel drum heads which, with the welded foot angles, form a rigid one-piece fabrication.

LINERS . . . Mixer shell is protected by replaceable Ni-Hard sectional liners which give long-lasting life in operation. They are also interchangeable so that those near the bottom which get most wear may be interchanged with those further up on the sides, thus providing much longer life to the set. Drum heads are protected with liner plates, also renewable and interchangeable.

MIXING BLADES . . . The curvature of the mixing blades, their size and weight and their angle of contact with the drum are features that are the result of long scientific research and patient development. The design is such as to give maximum mixing with minimum power. They are adjustable on the arms. They are constructed of Ni-Hard metal which gives them *extra* long life.

BEARINGS . . . Self-aligning, anti-friction bearings are standard equipment on Stearns Mixers. They are fully enclosed for protection against the grit and fine dust encountered in concrete mixing and are designed to take both thrust and radial load.

GEARHOUSING—OIL-RETAINING . . . Quiets operation; eliminates wear.

DISCHARGE DOOR . . . The door in the drum, originated by Stearns, is outstanding for its convenience and simplicity. It opens and closes easily and locks in either position without latches or catches. Larger size mixers are equipped with air-operated doors.

CLUTCH PULLY . . . Bronze bushed pulley. Heavy duty clutches. Note: Clutch control is convenient to operator.

WATER MANIFOLD . . . For even distribution of the water in the mix, a water manifold is provided near the top of the drum.

OPTIONAL EQUIPMENT . . . Any desired custom-built features to meet special needs of individual plants can be added upon request. Consult the Stearns Engineering Division.

STEARNS

MANUFACTURING COMPANY • INC

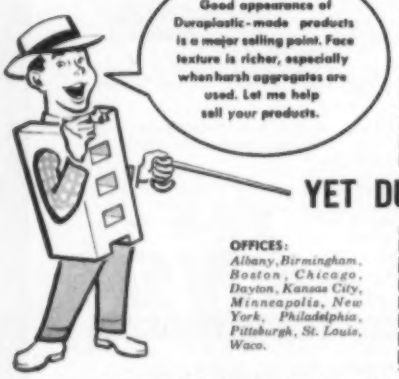
ADRIAN • MICHIGAN

ORDER GENUINE STEARNS PARTS FOR GUARANTEED PERFORMANCE IN OPERATION

"Thrifty" tells how DURAPLASTIC* helps stave off production problems

I'm not pitching hay! It's a fact that manufacturers using Atlas Duraplastic cement report less breakage in handling green products and a reduction in the number of culls and throwbacks. And with silo staves as with other concrete products, plants find that Duraplastic gives clean, true edges and corners ...increased resistance to passage of water.

and "Nifty" says:


Good appearance of Duraplastic-made products is a major selling point. Face texture is richer, especially when harsh aggregates are used. Let me help sell your products.

LET DURAPLASTIC COMPLETE THE STORY. With Duraplastic, you can make a more cohesive, rubbery mix which holds together better . . . feeds easily through machines. Duraplastic gains preference not only for manufacturing silo staves, but also for concrete pipe, brick, block, drain tile and other concrete products.

YET DURAPLASTIC COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Ave., New York 17, N.Y.

OFFICES: *Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.*

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company

PQ-D-146

ATLAS® **DURAPLASTIC**

AIR-ENTRAINING PORTLAND CEMENT

Makes Superior Concrete Products at No Extra Cost

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

The CONCRETE MANUFACTURER

April 1953

Any Volunteers?

AT THIS season of the year we are more likely than not to come down briefly with an obscure occupational disease which is the direct result of attending too many conventions and listening to too many discussions that sound far too much like far too many other discussions we have listened to in the past. While we're still in the throes of a mild seizure brought on by the recent succession of association meetings, we'd like to lob a few random remarks in the general direction of those hard working and usually much-maligned individuals who are saddled with the thankless job of planning convention programs.

Theirs, we would be the first to agree, is never an easy task. If they are fortunate, perceptive, and energetic, they may succeed in corralling enough *bona fide* ammunition for a reasonably good three-hour session, and then they must somehow contrive to stretch this comparatively inelastic material over enough sessions to make up a three- or four-day meeting. In the stretching process even the relatively good material often becomes so distorted that it loses all identity, and the whole undertaking may be characterized by a deadly monotone.

There has always been, and it seems fair to assume that there will always be, a serious dearth of good material from which to draw. But we have the feeling that the shortage is not nearly as serious as the results would indicate, and that there are sizable reservoirs of excellent material that are not even being explored. Almost without exception the programs of the meetings we attend are dominated by individuals whose basic philosophy and whole point of view differ in no important respect from the basic philosophy and whole point of view of the audience. Whatever else may take place in such meetings, it is a cast-iron certainty that nobody is likely to be surprised, or challenged, or stimulated, or provided with the inspiration to adopt a new point of view.

If it were practical to open the deliberations of our various industry groups to occasional expressions of opinion not necessarily in sympathy with the opinions and aims of their members, there is no doubt in our mind that the quality of material presented at meetings would show measurable improvement. We are much less certain, however, that any national trade association with which we are at present acquainted could survive for as long as six months after it embarked upon such a radical experiment.

Despite all the noise the average American makes about his love for freedom of speech, he remains singularly intolerant of all views and philosophies that differ materially from his own. Thus his thinking and reading and listening are all carefully monitored to keep even the least of his opinions forever inviolate, and we feel dismally sure that he would promptly lower the boom on any association that attempted now and then to break through his defenses.

William M. Avery

WATCH VIBRAPACS WORK!

The Amazing Performance of these Modern Machines Paves the Way for Additional VIBRAPACS

Cleveland Builders Supply Co.

Illinois Brick Co., Chicago

Builders Supply Corp., Phoenix, Ariz.

Picone Bros., Brooklyn

Besser Vibrapacs give you maximum production of high quality block, *automatically*. That's why so many Vibrapac plant operators come back for their 2nd, 3rd or 4th machine — or even more!

Press the starting button and three more block are ready for the curing room every few seconds. It's just that easy. The Vibrapac is fully automatic. No machine operator is required. No lost motions. No time wasted. Pallets and mixed materials are fed automatically. Three 8" x 8" x 16" modular block are produced at a time on one plain pallet. Smaller units, made in larger multiples, on the same set of plain pallets. As the block are completed, they are quickly transferred to the racks. One man, with the help of a Besser Power Off-bearing Hoist, does the job. No manual lifting! Off-bearer merely guides the hoist.

Besser representatives will gladly show you how you can step up production of high quality block with Vibrapacs. Write today.

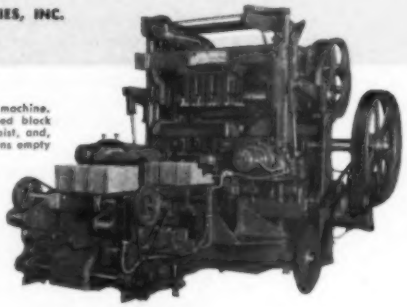
BESSER MANUFACTURING CO.

Alpena, Mich., U.S.A.

21 Concrete Products Plants Now Operate 4 or More VIBRAPACS

MARIETTA CONCRETE CORP.
Marietta, Ohio
MAULE INDUSTRIES, INC.
Miami Beach, Florida
CLEVELAND BUILDERS SUPPLY CO.
Cleveland, Ohio
ILLINOIS BRICK CO.
Chicago, Illinois
J. COOKE
Aldershot, Ontario, Canada
PICONE BROS.
Brooklyn, New York
SAN XAVIER ROCK & SAND CO.
Tucson, Arizona
BUILDERS SUPPLY CORP.
Phoenix, Arizona
BASALT ROCK CO., INC.
Napa, California
LAYRITE CONCRETE PRODUCTS CO.
Spokane, Washington
BORIN LUMBER & FUEL CO.
Detroit, Michigan
TEXAS INDUSTRIES, INC.
Dallas, Texas
TEXAS CONCRETE BLOCK CO.
Abilene, Texas
BIRMINGHAM SLAG COMPANY
Birmingham, Alabama
UNIVERSAL CONCRETE PIPE CO.
Columbus, Ohio
SPICKELMIER FUEL & SUPPLY CO.
Indianapolis, Indiana
V. PATURZO, BRO. & SON, INC.
Baltimore, Maryland
KATTERJOHN CONCRETE PRODUCTS CO.
Paducah, Kentucky
COLUMBIA CONCRETE PRODUCTS CO.
Toledo, Ohio
YORK BUILDING PRODUCTS CO., INC.
York, Pennsylvania
COMPANIA ANONIMA LA CONCRETERA
Caracas, Venezuela

Front Pallet Feed Vibrapac
The fully automatic block machine. One man removes finished block with power off-bearing hoist, and, with no lost motion, returns empty pallets to Vibrapac.



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news of the concrete industries

R. Neil Christy Heads Technical Problems Group Of N.C.M.A. for 1953

R. N. Christy

The new chairman of the National Concrete Masonry Association's Technical Problems Committee is R. Neil Christy, vice-president, engineering, Marietta Concrete Corporation, Marietta, Ohio.

Under Mr. Christy's leadership the committee is planning an active program of research on manufacturing and technical problems. Slated for study are the following: facilities and methods of drying block; tests of the effect of varying mixing time; block cubing methods and costs; and excessive cullage. Additional research will also be done on steam curing at atmospheric pressure to determine more definitely the optimum cycles for maximum block strength.

Technical studies planned include continuation of the sound transmission tests of concrete masonry partitions; research on the effect of varying the moisture content of block on suction rate and mortar bond; structural tests of reinforced concrete masonry; and an investigation of the flexural strength of concrete masonry walls on the horizontal span.

Newly-appointed members of the committee are Louis Freedman, Massachusetts Cement Block Company, Boston; John D. Daly, Auburn Cement Products Company, Inc., Auburn, N. Y.; and Jay C. Ehle, Cleveland Builders Supply Company, Cleveland, Ohio. They replace Alfred Paolella, R. A. Utiger, and Paul M. Woodworth.

Flexicore Floor, Roof Slabs Made in New Michigan Plant

The new Michigan Flexicore Division of Price Brothers Company went into operation on March 1. Its new plant at Livonia is the first established in Michigan to manufacture Flexicore precast concrete slabs.

Robert E. Beerbower, manager, has named William Cory as sales manager for the firm. This plant has an initial capacity of 1,000,000 sq. ft. annually and will serve northern Ohio, as well as all of eastern Michigan.

The Flexicore system provides long-span, low-cost floors and roofs adapted to all masonry, reinforced concrete, or steel frame construction.

Knott Named Vice-President And Manager of Texcrete Co.

E. E. Knott

Everett E. Knott has been named vice-president and general manager of Texcrete Company of Dallas. The announcement was made by Ralph B. Rogers, president of Texas Industries, Inc., the parent company. Mr. Knott will continue as manager of sales for the Dallas Lightweight Aggregate Co. and the Texas Lightweight Aggregate Co.

Joining the organization in 1950, Mr. Knott became special sales representative for Texcrete in 1951, and later general sales manager for Texas Industries, Inc. Previously he was with the Lone Star Cement Co. as assistant sales manager of the Texas Division and sales manager of the Indiana Division. In 1950 he set up the sales department for the Halliburton oil well cement plant in Corpus Christi.

INFORMATION SERVICE

Readers who desire more detailed information concerning equipment and supplies mentioned editorially or advertised in this issue are referred to the "More Information Please" cards which appear in this section for the first time. One of the cards bears numerals which correspond to identification numbers following each brief description of new literature and equipment. To obtain additional information, readers need only ring the items in which they are interested, fill in their names and addresses, and mail the postage-paid cards.

The purpose of the second card is to provide for inquiries concerning advertisements in the issue. Page number, product, and advertiser's name should be indicated to assure receipt of the desired information.

Dean Withey to Retire After Distinguished Career In Concrete Research

Morton O. Withey, dean of the University of Wisconsin College of Engineering, is bringing to a close this year nearly half a century of service to Wisconsin engineering education and research. Dean Withey reaches the university's automatic retirement age this year.

Dean Withey came to Wisconsin as an instructor in mechanics in 1905 after having received his Bachelor of Science degree from the Thayer School of Civil Engineering at Dartmouth College in 1904, and his graduate degree of Civil Engineer from that college in 1905.

His career has stretched across 48 years in the mechanics department, the Materials Testing Laboratory, and as dean of the University of Wisconsin College of Engineering. He began basic research on concretes and mortars in 1905. His early work on tests of plain and reinforced concrete were fundamental in that field and later aided greatly in improving practices in concrete construction.

In 1910 Dean Withey cast 450 18-in. concrete cylinders. Another batch was cast in 1923, and a third in 1937. The 2,500 castings, in addition to many smaller blocks, have been periodically sampled and tested to establish how various proportions of cement, sand, and crushed stone have aged under certain conditions. Some of the samples were exposed to the weather; others were placed under water; and the rest were stacked in a dry storeroom.

The long-term tests were among the first to be initiated in America and are now widely credited with giving the engineering profession reliable information about concrete and mortar strengths years after placement. This information is of great importance in estimating maintenance, depreciation, and replacement costs over the years in all kinds of concrete and mortar construction work.

After his retirement Dean Withey will continue to assist in testing the samples. Says he, "I'd like to arrange with St. Peter to stick around till the research is finished." (The work will not be finished until 2037, the year the last batch is 100 years old.)

Dean Withey is the author of many bulletins, papers, and reports on his studies in masonry materials.

Nameless Split Blocks Soon to Shed Anonymity In N.C.M.A. Name Contest

Results of a contest sponsored by the National Concrete Masonry Association (deadline March 31) are awaited with much interest among those who submitted suggestions for naming the split (or broken) face concrete masonry unit, a popular newcomer in the field. A last-minute bulletin may enable us to disclose the winner to our readers—we hope!

Members of N.C.M.A. were informed in the February *N.C.M.A. Reporter* that a prize of $10 would be awarded to the person submitting the best name. Each contestant had the privilege of sending in as many names as desired. No copyrighted names would be considered unless the holders of such names were willing to sign them over to the N.C.M.A. for use by its members.

Watch the *Reporter* and THE CONCRETE MANUFACTURER for the winning name.

Laurini, Rosenberg, Kenneweg Join Texas Industries Staff

Zane P. Laurini, Walter D. Rosenberg Jr. and Alfred E. Kenneweg have been added to the Dallas staff of Texas Industries, Inc.

Mr. Laurini, previously with the engineering division of Texas Lightweight Aggregate Co., Houston, will be assistant to Cedric Willson, vice-president and chief engineer of Texas Industries, Inc. He is a graduate of the University of Houston and is a veteran of 50 combat missions over Italy with the 15th Air Force during World War II.

Mr. Rosenberg will be assistant to Arthur Clark, vice-president in charge of concrete masonry operations. He was formerly with the sales department of Texcrete Co. of Corpus Christi.

Mr. Kenneweg has joined the accounting division. He is a graduate of Baylor University, and was previously with Ernst & Ernst, Dallas.

Lone Star Cement Concrete Paves Cave Warehouse Floor

A total of 5,000 cu. yd. of concrete floor has been laid in the Natural Storage Company's limestone cave-type warehouse near Cold Spur, Kans., by the John Rohrer Contracting Company, Kansas City, Kans. Concrete Materials, Inc., also of Kansas City, supplied the ready-mix—Lone Star cement concrete—for the heavy-duty floors. These were placed directly upon the natural stone floor.

Capacity of the warehouse is estimated at 2,500,000 cu. ft., and future plans envision almost limitless expansion. Chambers hewn out of the natural limestone have a year-round temperature of approximately 55 deg. F. Serving the warehouse is the Union Pacific Railroad, whose right-of-way parallels the mile-long frontage of the cave.

J. M. Hunley and Harry Blessing, proprietors of the H&B Ready Mix Concrete Company, Inc., at Flora, Ill., recently announced the opening of their plant. Mr. Hunley is president and treasurer of the firm, and Mr. Blessing is vice-president and secretary.

Marietta Concrete Corp. Announces Incorporation Of New Florida Branch

F. L. Christy

Officials of the Marietta Concrete Corporation, Marietta, Ohio, producers of precast concrete products, have announced the incorporation of The Marietta Concrete Corporation of Florida. The new plant will be located at Hollywood, Florida. F. L. Christy, president of The Marietta Concrete Corporation, will head the new Florida firm.

The plant will manufacture mortarless concrete block, precast concrete wall panels, and farm and industrial silos. The design plans have been completed by Overend & Boucher, architects, of Wichita, Kansas, in cooperation with Marietta Concrete Corp. engineers, and construction is expected to start immediately. The new plant will have an authorized capital of $250,000. When completed, it is expected that the Florida plant will employ 200 production workers, including key men from the Marietta plant during the first weeks.

Associated with Mr. Christy and other present officers of The Marietta Concrete Corp. in the new Florida corporation will be Byron Radcliff of Wichita, Kansas. Mr. Radcliff has been engaged for many years in the manufacture of concrete products and the erection of farm silos in Kansas.

The new corporation is a part of the extensive expansion program currently being undertaken by The Marietta Concrete Corporation. In addition to the Marietta, Ohio, plant, and the new Florida corporation, the firm operates plants in Baltimore, Md., Charlotte, N. C., and in cooperation with Precast Building Section, Inc., in Long Island, N. Y.

● Present at this gala occasion in Los Angeles on February 27 were members of the National Sand and Gravel Association and the National Ready Mixed Concrete Association and their wives who attended the annual conventions of these groups at San Francisco. They were guests of the Southern California Rock Products Association and the Southern California Ready Mixed Concrete Association and their wives. Among those honored at the dinner were Mr. and Mrs. Vincent P. Ahearn and Mr. and Mrs. Stanton Walker of the national association staff, Mr. and Mrs. A. R. Shiely, Mr. and Mrs. J. Rutledge Hill, Mr. and Mrs. H. V. Owens, Mr. and Mrs. E. Phil Gemmer, Mr. and Mrs. Claude L. Clark, Mr. and Mrs. Norman Fredericks, Edward J. Nunan, William Moore, and John Donovan.

LOOK JOE! The FASTEST CUT...

AT THE LOWEST COST* is YOURS with a... Clipper MASONRY SAW

Can You Equal this Speed?

PORCELAIN	KILN BLOCK	FIRE BRICK	
Cut in	Cut in	Cut in	
22 SECONDS	21 SECONDS	4 SECONDS	
VITRIFIED PIPE	CONCRETE BLOCK	GLASS BLOCK	NATURAL STONE
Cut in	Cut in	Cut in	Cut in
18 SECONDS	19 SECONDS	8 SECONDS	12 SECONDS

Our Only Business for Nearly 20 Years—Masonry & Concrete Sawing

Inside or Out... WET or DRY
IT COSTS LESS TO CUT WITH A CLIPPER MASONRY SAW...

HERE'S WHY! . . . The DUSTLESS Clipper operates right beside your bricklayers because the Clipper is PORTABLE . . . easily moved from basement to roof. One Clipper Model HD with a Clipper Diamond Blade will do the cutting of 3 ordinary abrasive saws! This is possible *ONLY* with such Patented Clipper features as . . . the Pressure Equalizer Spring, the Famous Select-A-Notch, Water Application System, and Adjust-A-Cut which makes possible One-Spot Operation.

IT'S YOURS ON...
FREE TRIAL

ORDER TODAY . . . on FREE TRIAL. Discover for yourself how CLIPPER . . . will increase your profits by increasing your production at reduced costs. CLIPPER'S "On the Job" FREE TRIAL guarantees you satisfaction at no obligation!

EXCLUSIVE CLIPPER FEATURES

PRESSURE EQUALIZER
- Makes your blades last longer . . . Because Equalizer Spring automatically cushions blade pressure.

SELECT-A-NOTCH
- One man easily adjusts Cutting Head to desired height . . . Operator's hands merely guide.

"WET OR DRY" PUMP
- No need to remove belt when cutting dry. No maintenance . . . Factory Sealed . . . Patented Water Application Unit controls flow.

INCREASE YOUR PROFITS!
SAW CONCRETE BEFORE BREAKING FOR PATCHES OR TRENCHES

Save up to 50% in labor and material. Saw repair patches—gas, water, sewer and air line trenches in floors, streets, walks, runways and highways. Save, too, by sawing contraction joints—eliminate costly hand forming and spalling.

5 MODELS-GAS OR ELECTRIC POWERED

CLIPPER CONSAWS

Clipper

BE SURE THE BLADE YOU USE IS A *Genuine* CLIPPER

. . . guaranteed to "Consistently Provide the fastest cut . . . at the lowest cost . . . with the greatest ease!" Clipper alone can supply *all* specifications of Abrasive, Diamond and "CBR" (Break-Resistant) Blades to accurately meet your requirements. INVEST IN CLIPPER and YOU'LL GET RESULTS!

SERVING THE WORLD AS THE WORLD'S LARGEST MANUFACTURER OF MASONRY SAWS.

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Send FREE Literature and Prices on:

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No. 93

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● The lighter side of the affair—the 45th annual convention of the American Concrete Pipe Association, held in Dallas, Tex. in February. Here the members and their wives, some appropriately costumed for the event, are shown enjoying a square dance at a Texas party and barbecue.

Bernard Predicts Availability Of Adequate Cinder Supply

Cinder block manufacturers need not fear any shortage of cinders, one of the nation's largest shippers of this important lightweight aggregate assured block producers during the annual cinder block session at the N.C.M.A. convention in Cleveland. Speaking for the Foreston Coal Company, Inc., New York City, Van Bernard, manager of the company's Cinder and Slag Division, voiced the opinion that 1953 will see an all-time record for shipment to block makers.

Van Bernard

There is no shortage of cinders, Mr. Bernard maintained. He pointed out that Foreston has tripled its sales of cinders to block manufacturers. Today the company controls approximately 2,000,000 tons of quality anthracite cinders, and the supply is being constantly augmented. Mr. Bernard praised the high-caliber business executives who have "put capable hands" to the development of the cinder block industry.

The speaker emphasized that established cinder shippers use the most modern equipment to crush and screen the material, so that the block producer can be assured of receiving the highest quality of cinder product. They also provide such extra services as putting calcium chloride in the railroad car pockets during the winter in order to facilitate the manufacturer's unloading of the cars.

New Construction Totals Unusually High for February

Expenditures for new construction declined less than seasonally in February to $2,200,000,000, and were at a record high for the month, according to preliminary estimates of the U. S. Labor Department's Bureau of Labor Statistics and the Building Materials Division of the U. S. Department of Commerce.

Private spending on commercial and most other types of nonresidential building continued strong for this time of year, reflecting to some extent a backlog of projects put under construction since relaxation of credit and materials controls in the latter half of 1952. Because of the winter drop in housing starts, expenditures for work put in place on private nonfarm housing fell by 8 percent from January to $675,000,000. However, additions and alterations to existing housing rose to $67,000,000.

Most types of public construction showed the declines usually expected for the month, bringing total public outlays down by about 9 percent from January.

Expenditures for all new construction during the first two months of this year were nearly 6 percent above last year's total for the same months, and when November and December are taken into account also, new construction activity was at record levels for the winter of 1952-53. Thus far this year, most major types of construction showed dollar increases over January-February of 1952. However, hospital building (private and public) is down substantially because of the tapering off of the Public Health and Veterans Administration construction programs. Also, expenditures were less for private industrial building than in January-February, 1952, when private plant expansion was at unusually high levels. The drop in expenditures for public housing over the year reflects the reduced statutory limit on the number of federally subsidized units that may be started this fiscal year.

The Sheffield Concrete Block Company, Sheffield, Ala., was recently granted a Defense Plant Act credit by the R.F.C.

Accurate Batching Control Specified for Ohio Turnpike

The recently published Ohio Turnpike Specifications have attracted wide interest among concrete technicians because of the extent to which they spell out the performance requirements of the equipment to be used in batching operations. The specifications were written under the supervision of Raymond J. Rosenberger, specification engineer for the J. E. Greiner Company of Baltimore, consulting engineers for the turnpike project.

"Each weighing scale for cement, water and concrete aggregates shall be of a type approved by the engineer and laboratory. Each weighing scale shall be of a type which will accurately and visibly indicate the loading condition at any time during the weighing operations, from nothing to the full weight of each ingredient.

"The equipment shall include means for accurately and quickly determining the amount of free water in aggregate samples. Such determinations shall be made in one (1) minute or less and shall be accurate to within one-fourth (¼) of one (1) percent of sample dry weight.

"The equipment shall include batching scales on which the specified dry weight of aggregates and total weight of water can be set and which are capable of adjusting these weights to compensate for varying degrees of moisture, in the aggregates; and which will deliver those specified weights within tolerances of one-fourth (¼) of one (1) percent of dry weight for aggregates and one-half gallon per cu. yd. for water, regardless of varying water content of aggregates.

"Where bulk cement is used, a separate scale shall be provided for cement and it shall weigh within a tolerance of one-fourth (¼) of one (1) percent. Cut-off of cement shall be automatic and controlled by the scales. All cement handling, weighing, and batching appartus shall be protected from the weather.

"The weighing equipment shall include an automatic graphic recorder or recorders, capable of being locked and of graphically recording the weight of each ingredient delivered to each batch. It shall also include means of identifying each batch on a graphic record and be capable of recording the moisture compensation made in weighing aggregates and water.

"The equipment shall include means for the accurate determination of aggregate gradation.

"All scales shall conform to the weighing scale requirements of the U. S. Bureau of Standards, Handbook H-29, and such conformance shall be checked at intervals of not more than two (2) weeks.

"Ten (10) 50-lb. standard test weights and a set of accurate platform scales of at least five hundred (500) lb. capacity shall be provided at each batch plant for testing weighing equipment."

Look how D-40 helps produce better, stronger Concrete Blocks

Sharper corners and edges

Increased plasticity improves handling with less breakage

Better appearance—smoother texture, whiter color

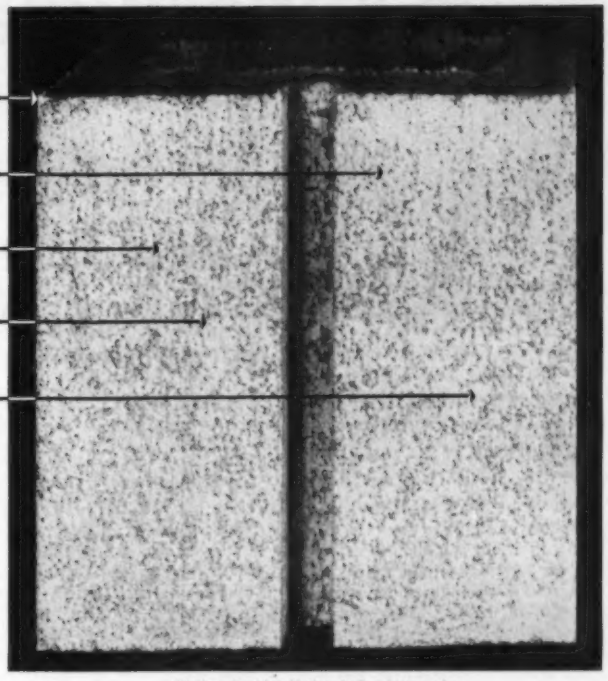
Greater strength due to decrease in water content

Closer bonding—saves on painting and waterproofing

D-40 reduces abrasive wear on mixing and molding equipment

D-40 saves time—mixes pour into molds faster—"break" cleaner

Economical D-40 costs you a fraction of a cent per block



(Block made with D-40. Note the fine texture, color and appearance—the sharp edges and corners)

You will be amazed at the outstanding results obtained by adding one to two ounces of dry, granular D-40 per bag of cement at the mixer. D-40 is a ready-to-use additive supplied in economical 85# bags by Oronite, the world's largest producer of synthetic detergent raw materials.

Let us show you how we have helped other concrete products manufacturers make superior products and at the same time reduce their operating costs. Our experience is at your disposal.

ORONITE CHEMICAL COMPANY

THE NAME TO WATCH IN CHEMICALS

Ready-mixed concrete producers have found D-40 improves their product

For complete information, samples and technical help write or call the Oronite office nearest you.

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San Francisco

voted Ideal Location for 23rd Annual N.R.M.C.A. Convention

Combination of business, plant inspections and other activities meets wide approval.

ON THE SPOT report

THE National Ready Mixed Concrete Association and the National Sand and Gravel Association have for the third time in recent years proved the popularity with members of holding their combined conventions in non-exhibit years in remote sections of the country. The first of these meetings, held in Los Angeles in 1947, was so successful that the 1951 meetings were scheduled for New Orleans, with equally good results. The meetings just completed, constituting the 23d annual convention of N.R.M.C.A., and the 37th annual convention of N.S.G.A., were held from February 23 to 26, 1953, at the Fairmont Hotel in San Francisco, Calif. The location, in one of the country's finest hotels on top of famous and exclusive Nob Hill, was highly suitable for one of the best meetings these groups have ever had in a non-exhibit year. Holding these meetings in San Francisco was also an appropriate recognition of the support and co-operation both associations have received over the years from producers in California and other western states.

Holding these conventions in four days instead of the usual five, together with the fact that a full day was set aside for plant field trips, made it necessary to cover more ground in fewer days. Rather than to cut down on the number and

Richard K. Humphries (left), Pacific Coast Aggregates, Inc., ended his term as president of N.R.M.C.A. at this convention. Herbert Jahncke (right) is the new president.

Shown here are the winners in the three size classifications of the N.R.M.C.A. safety contest, with the PIT AND QUARRY Safety Trophies. Holding the Class A Trophy—for plants of 100,000-cu. yd. annual capacity or more—(left) is W. S. Walters of the Fischer Lime & Cement Co., Memphis, Tenn. In the center is Alfred H. Morse of the Morse Sand & Gravel Co., Attleboro, Mass., winner in Class B—plants with 50,001 to 100,000-cu. yd. capacity. At the right, holding the Class C trophy—for plants with 50,000-cu. yd. or less capacity—is William B. Thomas of Thomas, Bennett & Hunter, Inc., Westminster, Md.

J. M. Scheinin, James A. Norton, Inc., New York; R. S. Evans, American Aggregates Corp., Detroit, Mich.; Harold M. Lacy, Dallas Concrete Co., Dallas, Tex.; and G. W. Kaiser, Kaiser-Nelson Co., Cleveland, Ohio.

Robert C. Shiely, Guaranteed Concrete Co., St. Paul, Minn.; Fred Bartel, Tews Lime & Cement Co., Milwaukee, Wis.; Donald G. Schuster, Schuster Quality Concrete, Green Bay, Wis.; and Thor W. Becken, Transit-Mix Concrete Co., St. Paul, Minn.

Robert V. D. Booth, Union Sand & Supply Co., Painesville, Ohio; Stanley G. Marks, Marks Tractor & Equipment Co., Cleveland, Ohio; George Goetz Sr., Clifton Coal & Supply Co., Lakewood, Ohio; and P. J. Heltzel, Heltzel Steel Form & Iron Co., Warren, O.

variety of subjects discussed it was decided to double up to a greater extent than ever before. On Monday morning, February 23 the two boards of directors had a joint meeting. On Monday afternoon there was one joint meeting, but on Tuesday morning and afternoon, and Thursday morning there were two simultaneous joint sessions, so arranged that each of the two concurrent sessions covered subjects of an entirely different character from the other. In this way it was in most cases possible for a producer to select the meetings of greatest interest to him or, as many did, to shuttle back and forth between them. The final meetings on Thursday afternoon were separate business meetings of each association. This method of programming has made the problem of reporting these meetings to our readers a little more difficult than usual. In order to be fair to both sand and gravel and ready mix readers we are running both in PIT AND QUARRY and THE CONCRETE MANUFACTURER all material of interest to both, and in each, of course, all material of direct interest to the industry covered.

A study of the program will make it apparent that it was at least up to previous high standards. In line with the expressed preferences of members, there was a maximum of informality in the program, which was made up principally of addresses by men drawn from the ranks of the industries, who spoke about everyday problems of their businesses. Those speakers who were from outside the field were men whose offices or whose relationship to these industries made them important. Among the many subjects discussed were the following: labor dispute arbitration, group bargaining, group insurance, heavy media in gravel production, production and specification problems, percentage depletion, cost determination, industrial radio, sales agreements, merchandising, sales policies, activities of state associations, zoning and pollution problems, cement supply, safety policies, legal and government developments, and business prospects.

There was no machinery exposition this year but every effort was made to give producers and machinery company representatives ample opportunity to get together. Monday morning was open for all except directors; formal entertainment was limited to a joint luncheon on Tuesday; noons and evenings were left entirely open. In addition a large room near the meeting rooms was set aside from 9 a.m. to 5 p.m. each day throughout the convention for the associate members, most of whom had to stay at other hotels due to lack of space at the Fairmont. Also every evening from 5 p.m. to 1:30 a.m. a hospitality room was available, with music, entertainment, and liquid refreshments. This was a substitute for the manufacturers' reception, which featured past conventions and further facilitated contacts between active and associate members.

New Officers and Directors At this convention new officers were elected for the National Ready Mixed Concrete Assn. They are as follows: president, Herbert G. Jahncke (Jahncke Service, Inc., New Orleans, La.); vice-president, Louis C. Schilling (I. E. Schilling Co., Miami, Fla.); and treasurer, Robert Mitchell (Consolidated Rock Products Co., Los Angeles, Calif.). Robert C. Collins (Warner Co., Philadelphia, Pa.) was re-elected to a second term as vice-president. New directors are: W. W. Duncan (Clark Certified Concrete Co., Inc., Baltimore, Md.); Frank Penepacker (Readymix Concrete Co., Portland, Oreg.); H. Irving Rhine (Bode Gravel Co., San Francisco, Calif.); R. E. Saller (South Texas Materials Co., Corpus Christi, Tex.); F. E. Schouweiler (Old Fort Supply Co., Fort Wayne, Ind.); Harold E. Shelby (Concrete Supply Co., Charlotte, N. C.). Otis H. Manchester Jr. (Concrete Transport Mixer Co., St. Louis, Mo.), as chairman of the Truck Mixer Manufacturers Bureau represents this body on the board.

Coming Conventions At the combined meeting of the two boards of directors on Monday morning, February 23, dates and locations of coming meetings were announced. The fall meetings of the two boards will be at the Broadmoor, Colorado Springs, Colo., on September 28, 29, and 30, 1953. The 1954 annual conventions and machinery exposition will be at the Hilton Hotel, Chicago, from February 15 to 19. The convention and exposition of the National Crushed Stone Association will be held the week following. In 1955, a non-exhibit year, the combined annual conventions will be at the Columbus and McAllister Hotels, Miami, Fla., from January 9 to 13, inclusive. The Hilton Hotel, Chicago, has been definitely selected as the site for the 1956 annual convention and show.

Joint Luncheon The joint luncheon on Tuesday, February 24, was presided over by Richard K. Humphries, president

of N.R.M.C.A. After a few brief welcoming remarks he introduced, among others, Anson S. Blake, president of Blake Bros. Company, Richmond, Calif., dean of California producers, and probably of the entire crushed stone industry. The featured speaker, Louis B. Lundborg, vice-president, Bank of America, San Francisco, gave interesting highlights of the history, expansion, and attractions of this area. San Francisco is, he said, probably our most cosmopolitan city with nearly every race and nationality represented in its population, many having their own colonies. Mr. Lundborg pointed out that California, up until World War II was largely an agricultural state and that, although it is now evenly divided between industry and agriculture, it is still the top agricultural state. In diversity of manufacturing it is second only to New York state.

Plant Field Trips The third day of the four-day meeting was devoted to a plant field trip to two of this country's largest and best sand and gravel plants. This event was so popular with both sand and gravel and ready mix producers that eight or ten Greyhound buses were required to transport them. A number of ladies also elected to make this trip in preference to the special trips planned for them.

Because of traffic congestion problems it was not practicable to include ready-mixed-concrete plants on this trip. Instead, special group trips were arranged to five modern ready-mix plants in the area which were open to those attending the conventions.

Opening Addresses The fabulous Gold Room of the Fairmont Hotel was filled nearly to capacity as the presiding officer, E. F. Brovelli (Basalt Rock Co., Napa, Calif.) called the opening session of the combined convention to order. Mr. Brovelli, President Albert R. Shiely (J. L. Shiely Co., St. Paul) of the National Sand and Gravel Assn., President Richard Humphries (Pacific Coast Aggregates, Inc., San Francisco) of the National Ready Mixed Concrete Assn., and Frank B. Durkee, Public Works Director of the state of California, joined in a rousing welcome to the producers, who came from nearly every state in the Union and as far away as Havana, Cuba. Gavels fashioned from the burl of a California redwood tree estimated to be

John Donovan, Valentine Concrete Co., Springfield, Mass.; Mrs. Cynthia Youens, Texas Construction Material Co., Houston, Tex.; and John Pesce, Campanella & Cardi, Hillsgrove, R. I.

2,000 years old were presented to each association president at this session by the Redwood Empire Association, as tangible tokens of greeting.

President's Address The ready-mix and aggregate industries need to concentrate on well planned programs dealing with public relations, in the opinion of President Humphries. In the case of the ready-mixed-concrete industry, he posed several questions and supplied a few answers to outline various aspects of the public-relations viewpoint. "How does the public physically view our activities? Are we poor housekeepers? Do our yards or plants present an objectionable appearance as compared to the surrounding area? Are we providing more objectionable nuisances in the way of noise or dust than most?

"Are we providing more attractive hazards by way of unfenced unloading pits, or easily accessible starting switches and electrical connections than other industries? How about our dispatch office, scale-house and sales office—are they neat and orderly?

Ready-mixed-concrete trucks are constantly before the eyes of the public; and it is just plain, good public relations, he declared, for such trucks to be clean, mechanically reliable, and operated by careful, courteous drivers. They must not be overloaded to the point of endangering public safety, nor should grout be allowed to trickle from the rear gate en route to the job. Whether we like it or not, Mr. Humphries emphasized, we are at the mercy of the public sufferance and it is imperative that we put our best foot forward at all times.

Group Insurance *The Group Insurance Program of the National Ready Mixed Concrete Association* was discussed by Donald Shepherd of the John Hancock Mutual Life Insurance Company, Boston. He made comparisons of the association plan with others in operation in various plants and areas. He showed that while each of them seemed to have advantages which most of the others did not have, yet in the important categories the association plan offered the most for the money and gave the best coverage. Mr. Shepherd warned particularly against the plan of the Teamsters Union, which would take control out of the employer's hands, from which he could get no dividends, and for which non-union employees might not be eligible.

The association plan, he said, encourages stability of the employees, whereas in the others a man qualifies only by union membership, regardless of where he works. He pointed out that the cost of the plan is deductible from taxes as a legitimate expense by both employer and employee and that the latter pays no tax on benefits. This plan can also be adapted to companies already having other plans; and companies operating both ready-mix and sand-and-gravel or other types of operations can join for all their employees, with the possible exception of companies running these different businesses under other names.

Safety Awards The feature of the final exclusively ready-mix meeting was the presentation of the Pit and Quarry Safety Trophies to the three winners of the contest conducted by N.R.M.C.A. The award in Class A — plants producing 100,000 cu. yds. or more annually — was won by the Fischer Lime & Cement Co., Memphis, Tenn. The award was accepted by W. S. Walters. In accepting this trophy he said that some years ago it was impossible for the company to get insurance coverage because of prejudice against this industry. An intensive safety program was therefore inaugurated with obvious results.

The Class B award—50,001 to 100,000 cu. yds.—was won by the Morse Sand & Gravel Co., Inc., Attleboro, Mass., and was accepted by Alfred H. Morse of that company. He described the safety procedures followed which not only won a safety award but also was responsible

for a 12 percent reduction in equipment maintenance costs and even greater reductions in insurance rates.

The Class C award—50,000 cu. yds. or less—was won by Thomas, Bennett & Hunter, Inc., Westminster, Md., and was accepted by Wm. B. Thomas of that company. In a very modest and humorous manner he described the safety procedures followed, with the admonition that there must be serious work behind it.

Ahearn Report In his annual report to the two associations, Vincent P. Ahearn, executive secretary, gave the latest information on the multitudinous subjects of interest to these industries as well as a summary of association activities. He described what has been done by the staff with respect to price, wage, and material controls; percentage depletion; renegotiation; industrial radio; freight rate increases; car cleaning and repair; the wage and hour law; industrial relations; safety; group insurance; zoning and land rehabilitation; cost determination; state and area associations, etc.; and what the future may hold in each of these categories. With regard to cement supplies in 1953 Mr. Ahearn was pessimistic as the results of a study recently completed by the association indicate that, especially in the fall months, there will be serious shortages in some areas, and not much relief is expected in 1954.

In discussing the outlook for 1953, he said that all indications point to a higher volume of construction than in 1952, emphasizing particularly the growing awareness of the accumulating highway crisis and what is being done about it. With respect to sand-and-gravel production statistics, he suggested that N.S.G.A. consider a program of its own similar to that launched by N.R.M.C.A. last year, instead of depending on government statistics which always lag a year or more. He estimated that sand-and-gravel production in 1952 exceeded the 1951 all-time high by at least 6 percent for a probable 416,206,000 tons, valued at about $332,965,000.

For the first time, said Mr. Ahearn, we really know something about ready-mix production, due to the questionnaire sent out last year by the association to all ready mix producers of record. Reports from 691 producers showed that in 1951 they produced a total of 37,760,191 cu. yd. of concrete, valued at $424,136,796 and that they used over 50,000,000 barrels of cement. Encouraged by this gratifying response, said Mr. Ahearn, the association has already begun its study of the industry in 1952.

H. J. Taylor, Austin Ready Mix Concrete Co., Austin, Minn., and R. J. Andrews, Andrews Concrete Co., Mason City, Iowa.

In conclusion, Mr. Ahearn said that both associations are in excellent financial condition. N.S.G.A. has an all-time high of 232 active members and 76 associate members. N.R.M.C.A. membership is also at a new peak of 568 active members and 79 associate members, representing 47 of the 48 states, Alaska, Hawaii, and Puerto Rico, as well as Australia, Brazil, Canada, Cuba, England, Denmark, Mexico, New Zealand, and Venezuela.

Report of Engineering Director In his annual report Director of Engineering Stanton Walker presented a review of the work undertaken by the engineering staff of the two associations. He described the facilities that are available and the organization of the work, pointing out that the engineering staff is small and that personnel is a problem as trained men are difficult to obtain. This same situation arises in the engineering scholarships sponsored by the associations. Only half are being awarded as qualified students cannot be found due to the draft and high industrial wages. In spite of the small staff a considerable amount of work has been accomplished, but several long-range projects have had to be deferred as a result.

One of the most important activities of the engineering department is the annual Short Course on Aggregates and Concrete presented at the University of Maryland. This course, which is participated in by the University, is designed to train representatives of member companies of the associations in specifications, quality control, and other phases of aggregate and ready-mix production.

In addition to the short course sponsored by the association, the director of engineering is called on to participate in several other courses and conferences throughout the country which are sponsored by local groups and universities.

Preparing specifications in co-operation with other interested groups and conducting tests on them takes a large part of the engineering staff's time said Mr. Walker. Several projects are currently under way in this field and one recent result was the 1952 revision of aggregate specifications dealing with concrete, plaster, and masonry mortar by the A.S.T.M.

Ready-mixed concrete operators should watch out for specifications with dual requirements that are not consistent with each other, stated Mr. Walker. Beware of strength specifications that do not clearly define what constitutes compliance, and be sure that the required compliance is practical. Some specification writers, he said, are not as familiar with ready-mixed concrete as with job-mixed, and they frequently come up with some restrictive limitations designed to solve problems not connected with ready-mix operations.

Mr. Walker stated that an investigation of truck mixers carried out in co-operation with the Truck Mixer Manufacturers Bureau is a step in the direction of clarifying specifications for ready-mixed concrete by developing a basis for limitations. This investigation has been described in past issues of PIT AND QUARRY.

The report of the American Concrete Institute on *Recommended Practices for Selecting Proportions for Concrete* is of interest to ready-mixed concrete producers. This is one case where the association laboratory has played an important part in providing background information on which to base recommendations. This report has not had final approval for publication but it is expected soon.

According to Mr. Walker, the work of evaluating admixtures is continuing. Tests have just been completed on nine air-entraining admixtures, and a report is expected soon. Pozzolanic materials have come prominently into the picture, and some tests have been made on them as replacements for cement. A comprehensive investigation is to get under way on these shortly, especially with reference to fly ash.

The research fellowship is continuing the study of thermal characteristics of concrete. To aid this project a six-point recording potentiometer has been purchased.

Projects planned for the immediate future, said Mr. Walker, include a re-examination of the question of the effect of temperature of curing on the quality of concrete; a review of the significance of 24-hour and 3-day tests; means of expediting results so that a quick evaluation of strength-producing properties of cement can be obtained; and studies on the durability of concrete.

Cement Supply The last subject discussed at the final N.R.M.C.A. meeting, but one of the most important to producers, was a round table discussion of cement supply in 1952 and prospects for 1953. The following served as discussion leaders: William Moore (J. P. O'Connell Co., Boston, Mass.); Norman J. Fredericks (Koenig Coal & Supply Co., Detroit, Mich.); John D. Kling (The Cleveland Builders Supply Co., Cleveland, Ohio); and W. J. Hicklin, Jr. (Capital Concrete Co., Jacksonville, Fla), substituting for Louis C. Schilling (I. E. Schilling Co., Miami, Fla.), who was unable to be at this session.

According to Mr. Moore, all reporting companies in the northeastern part of the country had difficulty getting sufficient cement in 1952. Some of them were forced to suspend operations as long as five days at a time. He estimated a loss of output of possibly 20,000 cu. yd. during the year. Part of this was due to car shortages and to strikes in the cement industry. Mr. Moore said that the outlook for 1953 was not favorable as the cement companies cannot promise an increase in the supply to this industry in spite of the fact that cement productive capacity in this area is up 8 percent over a year ago. Apparently, he said, most of the cement produced is committed for the New York Freeway and other large highway projects.

Mr. Fredericks said that the cement situation was critical in the middlewestern states in 1952. Loss of output by the ready-mix industry is estimated at about 150,000 cu. yd. for the entire country, although a Michigan association survey showed almost that amount for this state alone. He attributed this shortage partly to the fact that the cement companies at the beginning of 1952 estimated the amount of cement this industry would probably require, and prospects at that time were not too bright. All anticipated production over that amount, he said, was allotted to contractors and others. Strikes in the cement industry then cut heavily into production, and the ready-mix industry suffered. These strikes, said Mr. Fredericks, were especially serious in this area. One of the largest cement plants was shut down for two months in the summer during the steel strike, and others were shut down as long as 47 days by strikes.

The prospects for 1953, according to Mr. Fredericks, are not too bright but they should be better if there are no major strikes. The cement companies, he said, are committed to supply huge amounts to the Ohio Turnpike, on which work is being speeded up. He pointed out that one cement plant had asked government permission to install four new kilns for completion late in the year and that permission had been refused on the premise that additional output was not needed.

Reporting for Ohio, Mr. Kling said that cement supply is expected to be shorter in 1953 even if there are no strikes. The state, he said, actually used 20 percent more cement than in 1951, with the result that more had to be shipped in from outside plants. The Ohio Turnpike and the atomic plant in the southern part of the state will draw heavily on supplies.

In reporting for the Southeast Mr. Hicklin said that there has been a five-year drouth and that 1952 was the worst. Conditions were worst in Florida. That state, he said, produced 3,000,000 bbl. in 1951 and used 9,000,000 bbl. His plant was shut down for 15 days late in the year due to the shortage. A new cement plant now in operation south of Jacksonville is expected to help conditions considerably, but some more remote plants may divert shipments elsewhere. Some cement was imported from foreign countries and from Puerto Rico and more is expected this year. With construction booming in this area he saw no relief in prospect.

Herbert Jahncke reported that in the New Orleans area cement supply was fairly adequate and prospects for 1953 are satisfactory.

Legal and Labor Developments

A feature of these conventions which has become a must for all attending is the annual analysis of the Washington scene by Vincent P. Ahearn, executive secretary of both associations. His address was entitled *The New Administration and the New Congress*, and in it he presented an encouraging picture of what lies ahead of us. He had only praise for President Eisenhower and the manner in which he has thus far conducted himself and the affairs of the nation. Our President, he said, intends to carry out his campaign promises and other obligations and commitments and will make his own decisions, basing them on what best serves the public interest. The appointments he has made to public office have been measured by the qualifications of the man for honorable service and not by political expediency. Our constitutional society, he said, justifies our faith only if its administration is entrusted to men who are dedicated to the public service. This system has survived many crises and its principles are still in use.

Our President, said Mr. Ahearn, shares with the really great presidents of the past an attachment for the constitutional division of powers among the chief executive, the legislative, and the courts. Congress is very jealous of its place in our constitutional scheme; each branch resists any effort by the other to invade its proper sphere of influence, but both branches join together to repel any assaults by the chief executive or the courts. The separation of government powers into three coordinate departments, he said, erects a system of checks and balances which keeps the powers of each arm within its proper limits.

Mr. Ahearn emphasized the seriousness of many of the decisions our President will have to make and the extent to which he will have to depend on the organization he has built up around himself. He described some of the difficult decisions which have already been made and analyzed the qualifications of the various new cabinet members and those appointed to other high offices.

The President, said Mr. Ahearn, is determined to re-establish the prestige and dignity of our foreign policy; he will press forward with the defense program; and he will be watchful of waste and inefficiency in the spending of the vast appropriations for defense. At the same time he must keep open the channels of international commerce and solve our budgetary deficit. Already, he said, the president has taken a firm stand against the reduction of taxes before the budget is brought into balance. As a result, business should not expect more than the ending of the excess profits tax law in June.

R. V. Raupe, Crown Concrete Co., Des Moines, Iowa; and James R. Farrington, Ready Mixed Concrete Co., Annandale, N. J.

In spite of the pressure from labor unions it is deemed unlikely that the Taft-Hartley Law will undergo extensive changes this year or next. Much labor trouble is expected because the unions find it difficult to realize that, while this government is committed to the right of collective bargaining, it is also committed above all to the protection of the superior rights of all of the people. Union leaders, said Mr. Ahearn, seem determined to goad our country into bringing about the enactment of legislation which will cancel some of the power which unions have acquired by law and by custom.

As we watch this panorama of the great and almost frightening decisions which the president alone must make, we will all agree, said Mr. Ahearn, that he should have our sympathy, our patience, and our tolerance. He carries our hopes, our ambitions, and our confidence. In appraising the awful agenda of our national problems, we will not fail to count our blessings. We have much to live for and much to be thankful for. We face an exciting and never dull future, full of danger but also full of hope. It will be good to be alive and good to live in a country with a modest man as President who has already shown his capacity to lead and his capacity to inspire.

Group Bargaining In the absence of George H. Maywald, president of the Lake County Ready Mixed Concrete Assn., East Chicago, Ind., his paper, *Group Bargaining in Lake County, Indiana,* was read by Vincent P. Ahearn, executive secretary of N.S.G.A. and N.R.M.C.A. Prior to 1948 the ready-mixed concrete companies in Lake County bargained separately, and each company tried to negotiate its own contracts, but with poor results. The association was formed in 1948 with the purpose of negotiating all labor contracts for these companies. The first contract was not in the full sense a county-wide contract as there were differences in wage rates and working conditions. In 1949 the association was complete—representing all companies in the county, and Mr. Maywald was made chairman of the negotiating committee. The old contracts had different rates and classifications of trucks. The first job was to standardize the rates in accordance with the manufacturers' rated capacity of trucks; to adjust these rates; also to standardize the working conditions. The contract was to run for two years with the right of either party to open for wage rates only after one year. This contract was completed and signed by each in October, 1949.

In April, 1950, the union served notice that it wanted to open the contracts, and Mr. Maywald was appointed sole negotiator for the association. After several meetings with the representative of the Teamsters' Union it became apparent that the union wanted to change the whole contract. By July matters had reached a stalemate and the union ordered all workers at one plant off the job in spite of the warning that a strike at one plant would be considered to be a strike against the association. When all plants were closed down the union called it a lock-out and called in the United States Mediation Service. The association offered an 11-cent per hour increase across the board with all of the terms of the old contract; a 19-cent increase was finally agreed upon. This was supposed to be a two-year contract with an expiration date of June 30, 1952. This contract also had in it an article which provided that in the event of any new federal or state legislation, directives, etc., affecting wages, hours, or working conditions, those portions of the contract would automatically be opened for negotiation by both parties.

After only a few months the union found a pretext for disputing one of the provisions of this contract, and after prolonged discussions the matter was finally brought to arbitration with a third member from outside. Partly because the association retained the top law firm of Covington and Burling, and partly because the association had kept all notes and records of previous happenings, it finally won. Mr. Maywald urged all producers to keep all records as the unions do.

Andrew F. Bieker, Bieker Co., Inc., Hammond, Ind., and John T. Gaither, Certified Concrete, Inc., East Chicago, Ind.

Nevertheless, in April, 1952, the union made new demands which were countered by a package offer from the association. Some progress was made until August 26, when the unoin struck one of the member companies. All plants immediately shut down again. The association again availed itself of the same top legal talent, and a federal mediator was called in. A letter was drafted telling the companies' side of the dispute and a copy was sent to each employee. Until then the workers had heard only the union's side of each controversy, and this letter turned out to be a wise move.

The union then worked on each company individually, trying to divide and conquer. Other steps were taken, including charges made to the press, which the association countered with large advertisements giving its side of the story. Finally the union agreed to recognize the association as the representative of these companies; a new contract was signed; and the men went back to work on September 22, after nearly a month of idleness. The men were given a number of added benefits which, however, were less than other employers had to give during the same period. In closing the author said that if labor has the right to organize, so have the employers. Area bargaining is the only way, in his opinion.

Arbitration of Labor Disputes President-elect Herbert G. Jahncke (Jahncke Service, Inc., New Orleans, La.) discussed the *Use of Arbitration in the Resolution of Labor Disputes.* His company built a temporary ready-mix plant on the site of a large construction project and the

union threatened to call a strike unless the plant workers were paid the higher construction wages. By agreement, attorneys for both sides went over a list of possibilities and finally selected an arbitrator who seemed eminently qualified and open-minded. After a nine-hour hearing and 110 pages of testimony which showed, among other things, that the company had built similar job plants in the past with no question of rates, the arbitrator decided for the union because the plant was on the job site instead of a short distance from it.

Mr. Jahncke warned that arbitrators should be used only in an emergency as most of them lean toward the unions, but that if they are used, a single one is advisable and he should be selected very carefully. Producers involved in labor unions should get the best and most experienced legal help as that is what the unions have. He urged that a detailed agreement on the issues be drawn up and signed by both sides.

Technical Engineering Developments

Truck Mixer Test Results According to Stanton Walker, director of engineering, truck mixers and agitators handled about 50,000,000 cu. yd. of concrete, representing more than 20 percent of the cement sold, in 1952. More than 3,000 plants contributed to the total. Questions have been raised from time to time as to the ability of the truck-mixer to mix concrete efficiently, since the mixing action of a truck-mixer is different from that of the conventional stationary mixer and since different rules, therefore, must govern.

Operating standards for the most part were set up when the industry was in its infancy and, with new designs and improvements in truck-mixers, the need for re-examination of the rules became evident to the ready-mix association. Accordingly, in co-operation with the Truck Mixer Manufacturers Bureau, a series of preliminary tests were conducted in the summer of 1952 at the University of Maryland.

Twelve different truck-mixers were employed to mix 92 full-sized batches of concrete, the mixers ranging from 2- to 5½-cu. yd. capacity. For comparison, 35 batches were mixed in a small laboratory mixer, all concrete being used effectively after the tests to pave 15,000 sq. ft. of parking lot at the university.

Samples weighing from 1,000 to 1,500 lb. were taken from each batch during discharge onto the subgrade and promptly transported to the laboratory. Nearly 2,000 test cylinders were molded for compression tests. About 600 slump tests and 1,000 Kelly ball tests for consistency were made. Hundreds of samples were washed to determine composition. Records of time, number, and rate of revolutions, temperature, moisture, grading, and photographs of the operations were kept in detail.

Batching and Mixing—The concrete was batched and mixed in the truck-mixers according to the manufacturers' instructions. Cement was loaded on top of the aggregates from a separate batcher. In general, mixing water was added from the water-measuring tank after the truck had been positioned on the subgrade with the drum revolving at the designated rate for the particular test.

Test Methods—Tests of aggregates and concrete were, when practicable, made in accordance with A.S.T.M. methods, and strength tests were made in a like manner. Tests for composition were made by washing a 100-lb. sample over a No. 100 sieve, drying the retained aggregate, and making a complete sieve analysis.

Mixing Rate—Taking the data as a whole, there appears to be no evidence to indicate that either fast or slow mixing should be expected to produce superior results. In practically any mixer, homogeneous concrete could be produced at either speed with the number of revolutions ordinarily specified as minimum. In actual practice, the faster speed would appear to have the advantage of producing adequate mixing in a shorter time.

Size of Batches—Results of the data seemed to indicate that the mixers used performed essentially as well when mixing a volume of concrete 11 percent greater than their rated capacities as when mixing straight capacity loads. There was some evidence, however, of slightly less uniformity in strength, but not in grading or slump. On the other hand, the rather limited data suggests that the 11-percent overload was about the maximum for efficient mixing. When overloads of 17 to 44 percent were mixed, uniformity of strength and composition were reduced significantly.

Drum Revolutions—Taken together, the data on effect of amount of mixing were quite revealing. They indicate that, under normal operating conditions, the 50 revolutions of mixing usually specified as minimum are adequate, even more than adequate, for producing uniform concrete. On the other hand, where the mixers were overloaded or difficult concrete was being mixed, desirable benefits in both strength and uniformity were apparently secured by a moderate increase in the amount of mixing. With air-entrained concrete, a longer period of mixing in point of time can be tolerated if the speed is kept low. Revolution counters were attached to most of the mixers tested but they did not operate with complete satisfaction, indicating the need for development of a counter especially engineered for truck mixers.

General Appraisal—The results, while less far-reaching than might be desired in many respects, afford convincing evidence that specifications for the operation of truck-mixers are on a sound basis, perhaps even overly conservative. The usual requirement for the minimum of 50 revolutions of mixing after all the water is in the drum appears to be adequately protective. Manufacturers' ratings of capacity seemed more conservative than necessary from the point of view of quality. Rating of mixing, within broad limits, seemed to be of little significance, since it is the number of revolutions that counts. Another important observation from the tests was that concrete which to the experienced eye *looks* well mixed, will almost certainly be proved by test to *be* well mixed!

How to Buy Mixer Trucks Some of the findings of the Walker report were confirmed in the next talk entitled *How to Buy Ready-Mixed-Concrete Hauling Equipment*, given by Robert C. Shiely (Guaranteed Concrete Co., St. Paul). In general, Mr. Shiely also feels that the mixers readily obtainable on the market today are quite satisfactory, although the trucks which carry them still leave much to be desired. The need for trucks and chassis specifically designed for ready-mix service apparently continues to exist.

The St. Paul operator had a number of slides shown as well as a motion picture depicting tests his company had conducted intermittently over the last four or five years. Emphasis was on the performance of various types of tandem drives in soft going.

Graphs shown charted various cost factors of depreciation, maintenance, and operation. The largest

item, and one that has risen most sharply, was wages paid to drivers.

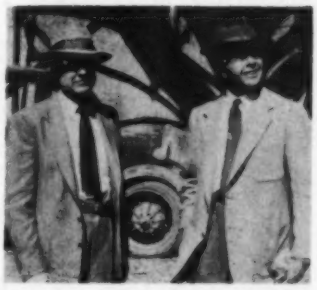
Two-Way Radio Communication Two-way radio communication between plants, offices, vehicles, and operating equipment proved to be a subject of considerable interest, despite the fact that the Federal Communications Commission is making it increasingly difficult to establish and continue such facilities.

This was brought out in the discussion which followed a paper on the subject by Frank B. Hagan (Graham Bros. Inc., Los Angeles). The operations of Graham Bros. are spread over a 50-mile radius, including pits, quarries, and processing plants on Catalina Island off the West Coast. Mr. Hagan described some of the advantages of radio communication to his company.

Licensed in August, 1947, to an exclusive frequency of 154.49 megacycles for an experimental 2-year period, the company petitioned for a renewal of its license at expiration. This was first denied but later, after the company had been off the air for more than a year, renewal was granted. Eligibility for the operation of such facilities, Mr. Hagan explained, has been based on whether or not a company's primary business function has been the production of materials rather than their delivery. In the case of Graham Bros. the far-flung nature of its operation, the lack of dependable telephone service, and the perishability of its product, ready-mixed concrete, seem to have been the arguments which enabled it eventually to obtain a license renewal.

Describing his company's set-up, Mr. Hagan told of the building of its main transmitter in the foothills 5 miles from its main offices in El Monte, Calif., and the equipping of each plant, yard, and 23 mobile units (none of which were in "delivery service") with two-way radio service. Advantages cited were the valuable time saved in instant communication when operating or technical advice was sought and given, changes in the design of mixtures, and diversion of trucks from one job to another in a hurry when such need arose. Co-ordination of operations has been speeded up remarkably, he declared, and fewer men are needed.

While Mr. Hagan reported that maintenance of the units ran as high as $25 per month, in the discussion which followed, Ward W. Anderson (Albuquerque Gravel Products Co.) said his company had been operating 30 mobile units at a cost of about $3 per month. He explained this, however, by saying that Eugene



Carl C. Engstrom, Salina Concrete Products, Inc., Salina, Kans.; and Paul W. Radichel, North Star Concrete Co., Mankato, Minn.

Sundt, general manager of his company, had an intense hobby interest in things electronic and that he undertook to keep the units in good operating condition in his spare hours without charge-off for the time involved!

Other producers reporting experience with industrial radio included Irving Warner Jr. (Warner Co., Philadelphia); W. J. Hicklin Jr. (Capitol Concrete Co., Jacksonville, Fla.); John Fisher, Phoenix, Ariz.; and Payne Kibbe (Utah Sand & Gravel Products, Salt Lake City). Mr. Warner reported that his company has units installed on dredges, locomotives, and cranes, in addition to the more conventional locations.

Role of Inspector *Inspection of Aggregates and Ready Mixed Concrete* was the title of an address given by J. W. Kelley, professor of civil engineering, University of California, Berkeley. A former quality control engineer of the P.C.A., Professor Kelley pointed out that although some of the old problems of inspection still exist, the major problem today centers around the human element. He stated that in spite of the great technological advancements in the aggregates and ready-mixed concrete fields, there is still a need for some one to check materials and processes.

In discussing the role of inspectors, the speaker stated that they should control uniformity of concrete materials, both as to manufacture and use in concrete; that they should constantly inspect stockpiles and see that segregation is avoided while the piles are being built; and that they should check the reliability of aggregates coming from various sources.

Professor Kelley felt that the inspector could do a better job by keeping careful records of all samples taken, by being certain that samples are representative, and by following standard testing procedures, particularly with reference to sieve analysis. Regarding this latter point, the speaker urged that greater use be made of the American Concrete Institute's Inspection manual.

Because of the inspector's important role, Professor Kelley urged that producers help make the job of inspector an honorable, life-time one.

Regarding ready-mixed concrete, Professor Kelley stated that A.S.T.M. standard specification C-94, which covers the general use of ready-mixed concrete, has been used too infrequently and should actually prevail. This standard deals specifically with the selection of concrete materials, concrete quality, slump tests, use of mixers and agitators, batching plant procedure, inspection, sampling, strength tests, determination of air content, and other important items.

Merchandising and Cost Determination

As vice-president in charge of sales for Consolidated Rock Products Company, Los Angeles, one of the nation's leading producers of aggregates and concrete, Quentin W. Best proved an ideal choice as presiding officer for a session devoted entirely to sales policies and merchandising methods.

Sales Agreements Mr. Best opened the program with an outline paper on *Standard Clauses for Sales Agreements.* He urged that each member having a sales agreement forward a copy to association headquarters in Washington, D. C., for developing a composite booklet to serve as a standard guide. To set the pattern for the session, Mr. Best posed some questions for thought and discussion which, in part, included the following: What is your cement protection policy? Who is responsible for cement-testing charges, and who should foot the bill? What contingencies do you accept, or refuse to accept? What responsibility do you accept for damages by your equipment to a customer's property?

(*Continued on page* 171.)

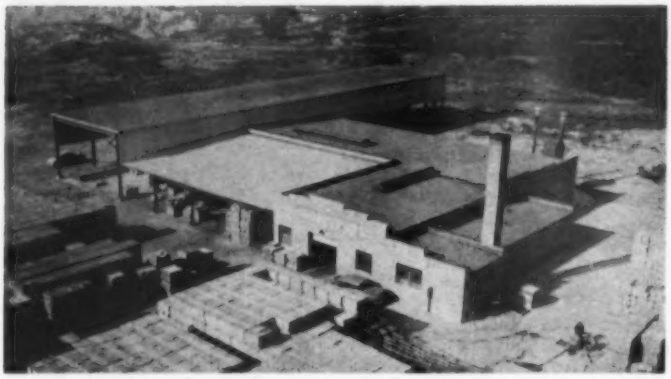
Illinois Brick's Strestcrete Plant Serves Chicago Metropolitan Area

By Kenneth A. Gutschick

ONE of the newest concrete floor and roof systems to be produced in the Chicago area is Strestcrete, a precast structural unit consisting of special concrete blocks secured together with prestressed steel rods. The precast unit is manufactured by Illinois Brick Company, Chicago, at its recently-constructed $300,000 Strestcrete plant, which is situated adjacent to the firm's huge block plant No. 2 in Blue Island, Ill., just south of Chicago's city limits. Strestcrete was originally promoted several years ago by the Basalt Rock Company of Napa, Calif.,[1] and presently the Blue Island plant is one of eleven plants in the United States licensed to produce this relatively new structural material.

That Illinois Brick Company, one of the nation's leading producers of both common brick and lightweight concrete block, should expand its facilities to include Strestcrete production is a logical outgrowth of this firm's enterprising nature. Originally starting as a manufacturer of common brick some 53 years ago, the company entered the concrete block business on a large scale in 1945, first through the purchase of the block plant of the Chicago Insulcrete Company at Franklin Park, Ill., and later in 1946 by the construction of a large, modern, block plant in Blue Island.[2] Besides producing common brick, conventional Waylite masonry units, and such concrete specialties as Waylite ground face block, Soffitile, and Fillertile, Illinois Brick also deals in face brick, tile, and other masonry materials. Strestcrete was later added to this list of diversified masonry products mainly because this precast unit, used mostly in floor and roof systems, excellently complements, from the standpoint of both production and sales, brick and concrete block used in wall construction. It has proved to be a strong competitor in the exceptionally large roof-and-floor market of the Chicago area.

Illinois Brick Company first began Strestcrete production in the latter part of 1950 at their block plant No. 2, utilizing a small portion of that plant for the final assembling operation. Because the facilities there soon proved to be inadequate for meeting the rapidly expanding market for the new precast unit, the firm began construction in the summer of 1951 of an entirely separate specially-designed production set-up immediately adjacent to the block plant. This new production unit, which was completed the following spring, is housed in an L-shaped building made of common brick, with concrete block as back-up, and featuring a Strestcrete roof. Plant equipment includes a block grinder, a bar cutter and butt welder used for fabricating the reinforcement cages, and a steel conveyor table used in assembling the finished planks. The special-shaped blocks, however, are still produced in the block plant.



A general view of Illinois Brick Company's new Strestcrete plant in Blue Island, Ill. Note the adjoining crane runway and covered storage area.

Hugo Fillipi, vice-president of Illinois Brick Company, Chicago.

The Strestcrete plant also includes an adjoining, covered, 40-ft. by 195-ft. crane runway used for storing and truck loading and a covered storage place used for stockpiling ground block. The new plant was designed by Hugo Fillipi, vice-president of Illinois Brick, who previously had made a thorough study of Strestcrete and other precast slab plants in the United States. Collaborating with Mr. Fillipi on the design of the plant were H. W. McCoy, engineer in charge of Strestcrete production; H. C. Buchholz, manager of the firm's concrete products division; and Clyde L. Stewart, sales engineer, Strestcrete division. Mr. McCoy is also in charge of engineering design of specific floor and roof jobs and also of on-the-job installations, which is one of the main features of the Illinois Brick operation.

Slabs or planks for roof and floor systems are manufactured in a variety of sizes, including thicknesses of 4, 6, 8, 10, and 12 in., widths of 16, 32, and 48 in., and spans up to 30 ft. The exact dimensions, of course, vary with the load requirement of each specific job. At the present production consists almost entirely of the 16-in. wide plank.

[1] Utley, Harry F.—Basalt Rock Adds Strestcrete Slabs to Its Variety of Concrete Products, PIT AND QUARRY, October, 1948, pp. 134-136.

[2] Avery, William M.—High Efficiency, Huge Capacity Are Features of Illinois Brick's New Plant, PIT AND QUARRY, November, 1947, pp. 157-161.

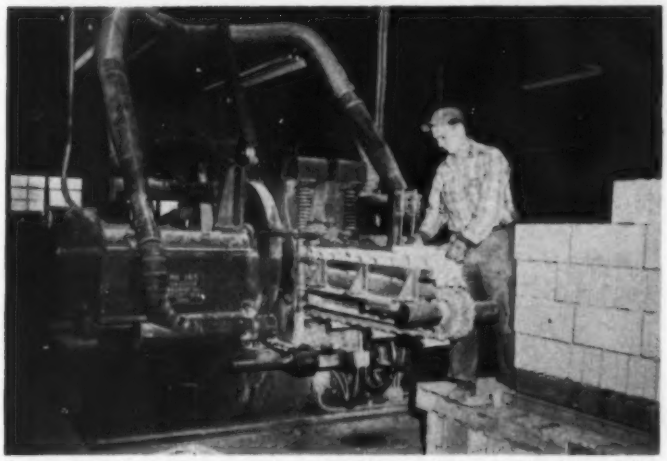
Clyde L. Stewart, sales engineer, and H. W. McCoy, engineer in charge of production.

The first stage of the operation begins in the block plant, where masonry units of various sizes are produced on four Besser Super Vibrapac block machines. The Strestcrete block, made in a special mold box, differs primarily from the conventional block in that it possesses two sets of grooves which are used for positioning the steel rods used in prestressing the planks. Because the block plant operation was described in great detail in the earlier PIT AND QUARRY article, it will suffice here to discuss this phase of the operation to a limited extent only.

As in the manufacturing of conventional lightweight block units at the Blue Island plant, Waylite aggregate, an expanded slag by-product obtained from the nearby Gary steel district, is used in the production of the special Strestcrete block. However, in addition to the blend of fine Waylite (minus ¼-in.) and coarse Waylite (¼- to ½-in.) used, a small percentage of mason sand is added, thereby making the masonry unit intermediate in weight between a lightweight and a heavyweight block. Following the molding operation, the green blocks are transferred to a battery of electronically-controlled steam kilns, where they are subjected to a 20-hour steam curing cycle, followed by a two-hour drying period. The units are then stockpiled for a period of 28 days in a protected open storage area adjacent to the plant. Following the period of air drying and curing the masonry units possess a compressive strength exceeding 2,500 p.s.i. (over the net area). The production of Strestcrete block is carefully coordinated with the production of the planks.

Other operations, including block grinding, fabrication of steel reinforcing cages, and final plank assembly, take place in the new building. In the first operation there, a Gardner No. 165 double-spindle grinder (42-in. wheel) is used to precision-grind the contact or bearing faces of the block to a tolerance of .005 in., thereby allowing the units to fit perfectly together when assembled in a plank. In addition, the units are also ground to allow a slight camber in the finished plank. Dust is kept at the minimum during the grinding operation by means of a suction fan and dust collector, the latter unit being located outside the building. The blocks are ground at the rate of 12 to 14 per minute.

Following grinding, the blocks are either assembled immediately or stockpiled in the covered storage area adjoining the plant. The storage area, which is roughly 50 by 60 ft. in size and open on one side, provides ample space for stockpiling the



Bearing edges of special-masonry units are precision-ground on a double-spindle grinding machine. Dust is eliminated during the grinding operation by means of a double suction pipe leading to a dust collector.

Ground masonry units are stockpiled with cores horizontal in a covered storage area adjoining the plant.

The butt welder shown here is used for welding standard machine bolts to the reinforcing rod.

ground units. Unlike conventional block, which are stored with cores vertical, the ground Strestcrete units are stored with cores horizontal, thereby preventing unnecessary damage to the ground bearing edges.

A unique feature of the Blue Island plant is the simple manner in which the steel reinforcing cages are fabricated. Instead of threading the ends of each of the two reinforcing rods used in each cage for placement of hex-nuts, at Blue Island standard machine bolts are welded to the standard-stock steel rods. The bolts (9 in. long) are first cut in half on a Manco guillotine bar cutter and then the halves are electrically welded to the reinforcing rods through use of a single-phase Universal butt welder. This method has proved to be faster and more efficient than threading. Various sizes of steel rods (and bolts) are used in the assembly, depending upon the load bearing requirements of the slab. The rods vary from ⅜ in. to ¾ in. Generally a ⅜-in. rod is used for a 4- or 6-in. plank; a ½-in. rod for a 4-, 6-, or 8-in. plank; a ⅝-in. rod for a 6-, 8-, or 10-in. plank; and a ¾-in. rod for a 10- or 12-in. plank.

The ground block units are next assembled with cores perfectly aligned and in a horizontal position on a Delano steel belt conveyor table, which is 48 in. by 70 ft. in size. The precision table is thus wide enough to accommodate the widest plank made. The steel cage, consisting of the two steel rods and two end plates, is then attached, and the plank is prestressed to 16,000 p.s.i. by means of a calibrated torque wrench. As a result of the prestressing, the plank attains strength and rigidity, which is one of Strestcrete's principal features. Strestcrete planks are produced at an average rate of 2,000 sq. ft. per shift.

In the assembly operation heavyweight rather than the special Strestcrete concrete block are used as end members, and in some specific cases their cores are filled with concrete. As a convenient way to obtain the variety of slab lengths required for specific jobs, the Strestcrete planks are assembled using a varying number of 7¼- and 7¾-in. wide masonry units. The general practice is to place the narrower block at one end of the plank and also to keep the same pattern for each specific job, in order to attain a uniform undersurface appearance of the entire floor or roof system.

After a plank is assembled, it is transferred to the crane runway *via* the steel conveyor belt, to be temporarily stored or to be loaded directly on a flatbed truck. Two bridge-type overhead 3-ton cranes (Industrial Equipment Co.), each equipped with two 1½-ton electric hoists, are used for loading operations.

One of the principal features of Strestcrete is that it can be installed easily. On-the-job installation is carried out either by an Illinois Brick Company five-man crew or by the individual contractor; normally 3,500 sq. ft. of Strestcrete floor can be installed in a day. Illinois Brick operates its own crane, a Bucyrus-Erie H-3 Hydrocrane, for setting the plank on bearing walls or beams. After the planks are set and aligned, the system is grouted by the crews, and if required, a topping of concrete is applied by the contractor.

By designing, producing, and installing Strestcrete roof and floor systems, Illinois Brick has reached a wide market in the Chicago area construction industry. This relatively new precast, prestressed type of plank has already found wide usage in most types of construction, particularly school, church, and residential. The service area has been largely confined to the Chicago metropolitan area; installations are generally within 30 miles of the Blue Island plant.

In addition to H. W. McCoy, Clyde L. Stewart, and H. C. Buchholz, other key personnel involved in the Strestcrete operation include Alfred Neubieser, superintendent of the Blue Island block plant; George Marshall, Strestcrete plant foreman; and Henry Buchholz Jr., setting foreman.

In this view a 12-in. thick precast plank is being assembled on the precision steel conveyor table. The worker in the rear is prestressing the plank by means of a torque wrench.

A view of the 40 ft. by 195 ft. crane runway, showing the steel conveyor belt in the foreground and the overhead bridge-type crane. Note the Strestcrete roof.

Training & Safety Film Lampoons "Hot-Rod" Fork Truck Operators

Don't use your truck as a personal elevator unless the worker is on a safety platform securely fastened to the forks.

A NEW 30-minute sound training film for industrial truck operators, entitled *Safety Saves*, has recently been produced by Clark Equipment Company, Battle Creek, Mich. Filmed at on-the-job factory and warehouse locations, the movie dramatically illustrates the "do's and don'ts" of safe driving, and shows the causes of most lift-truck accidents and how to avoid them. For truck owners who want to reduce accidents and cut damage to material, the new movie is a valuable training tool.

The "villain" of *Safety Saves* is Willie the Cowboy, a lad who drives his fork truck like a hot-rod and is the kind of driver who doesn't look where he's going, ignores overhead clearance, and parks his truck in the middle of busy aisles. In other words, he is a menace to fellow employees, to the materials he handles and to himself. The narrator of the film patiently tries to teach Willie the error of his ways, and he nearly succeeds. But unfortunately, before Willie finally learns his lesson, he makes one mistake too many. In the last scene, poor Willie is carried away on a stretcher. The wonder of it is how he lasted as long as he did.

Along with these horrible examples of how not to handle a fork truck, the movie shows the safe, correct method. The film also contains instructions for operators of towing tractors and hand trucks.

Representing one of sixteen similar movies produced by Clark during the past ten years, this film is available on a loan basis. Produced in response to hundreds of requests from truck users who expressed the need for a driver training film, *Safety Saves* was a follow-up to Clark's cartoon booklet, also entitled *Safety Saves*, published in 1951.

A number of rules for fork-lift truck operators set forth in the film and booklet, especially applicable in the concrete products industry, are as follows:

1. Avoid sudden stops.
2. Face in direction of travel.

(*Continued on page* 169.)

It is imperative to proceed cautiously at corners, particularly blind corners. It is best to stop and sound your horn.

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The directors and officers of A.C.P.A. for 1953. Standing: H. E. Eschenbrenner Jr., director; T. E. Arp, director; A. W. G. Clark, vice-president; G. H. Redding, past-president; Louis F. Dolch, director; R. B. Carroll, director; C. J. Kelly, director; Howard F. Peckworth, managing director; Peter Van Kuren, director. Seated: O. H. Miller, past-president; J. D. Mollendorf, treasurer; Harry W. Heath, vice-president; Ivy H. Smith, president; G. D. Williamson, director; Carl A. Bluedorn, vice-president; A. B. Metcalf, director; and D. H. Decker, secretary.

Concrete Pipe Associations Hold Conventions at Dallas, Texas

APPROXIMATELY 350 persons registered for the 45th annual convention of the American Concrete Pipe Association, held at Dallas, Texas, February 26 to 28 inclusive. Ivy H. Smith of Jacksonville, Fla., was re-elected president of the organization; other newly-elected officers included the following: Harry W. Heath, Carl A. Bluedorn, and A. W. G. Clark, all vice-presidents; David H. Decker, secretary; J. D. Mollendorf, treasurer; and Peter Van Kuran, R. B. Carroll, R. A. Norman, A. B. Metcalf, and H. E. Eschenbrenner Jr., all directors.

The past, the present, and the future of the concrete pipe industry were discussed at the meeting in terms of research, production, and selling. It was disclosed that the concrete pipe industry produced approximately 11,000,000 tons of all types and sizes of pipe in 1952, and there were predictions that this record tonnage would be duplicated in 1953. It was pointed out, however, that tightening markets and increased competition are demanding increasing emphasis on merchandising the industry's product.

The group learned that one of the principal industry research projects during the last year was the testing of large-diameter pipe sections especially designed to withstand the heavier loads now being imposed upon concrete pipe. Aimed at the development of rational procedures in the design of concrete pipe, the research has already resulted in designs which enable pipe sections to withstand loads several times larger than called for in current specifications.

It was also disclosed at the meeting that the capacity of future highway and railway culverts may be greatly increased by the proper design of culvert entrances. Dr. Lorenz G. Straub reported to the group the results of tests on various entrance models at the St. Anthony Falls Hydraulic Laboratory.

Especially significant, according to Dr. Straub, who is director of the laboratory, were the results obtained in experiments with culverts on steep slopes. It was found that where entrance had once been the control which determined capacity, a simple

(*Continued on page* 167.)

S. W. Freese, Freese & Nichols, Fort Worth, Tex., spoke on the history of pressure pipe in Texas.

Dr. Lorenz G. Straub, director, St. Anthony Falls Hydraulic Laboratory, Minneapolis, Minn.

Col. R. R. Litehiser, Ohio Department of Highways Testing and Research Laboratory.

Specifications and Technical Problems Committee. Standing: A. C. Clarke; E. L. Johnson; Hugh P. Ford; William B. Freeman; Peter Van Kuren; Howard F. Peckworth, A.C.P.A. managing director; Howard G. Curtis; and G. F. Lillie. Seated: J. Walter Porter, president, American Concrete Agricultural Pipe Association; G. D. Williamson; Lewis H. Tuthill; and Frank E. Rippon.

A threesome attending the banquet: Mrs. Ivy Smith; Louis F. Dolch, Dolch Concrete Pipe Company, Dallas, Tex.; and Ivy Smith, president, A.C.P.A., Sherman Concrete Pipe Company, Jacksonville, Fla.

Some members of the Technical Problems and Hydrogen Sulphide Work Committees. Standing: H. W. Chutter, Jourdan Concrete Pipe Company, Fresno, Calif.; H. M. Shaw, North Carolina Products Corporation, Raleigh, N.C.; and G. F. Lillie, Platte Valley Cement Tile Manufacturing Company, Scottsbluff, Nebr. Seated: E. F. Bespalow, Choctaw, Inc., Memphis, Tenn.; G. B. Denham, Faulkner Concrete Pipe Company, Hattiesburg, Miss.; C. J. Cain, Continental Concrete Pipe Corporation, Chicago, Ill.; and J. G. Hendrickson, research engineer, American Concrete Pipe Assn., Chicago, Ill.

1953 Board of Governors, Concrete Pipe Associations, Inc. Standing: R. A. Foley, Gifford-Hill-American, Inc., Dallas, Tex., American Concrete Pressure Pipe Assn.; W. B. Freeman, Lock Joint Pipe Co., Denver, Colo., American Concrete Agricultural Pipe Assn.; A. W. G. Clark, B. C. Concrete Co., Ltd., American Concrete Pipe Assn. Seated: H. S. Price Jr., Price Brothers Company, Dayton, Ohio, American Concrete Pressure Pipe Assn.; Ivy H. Smith, A.C.P.A.; and G. D. Williamson, Valley Concrete Pipe & Products Co., Yuba City, Calif., American Concrete Agricultural Pipe Assn.

1953 Board of Direction, American Concrete Pressure Pipe Assn. Standing: E. L. Johnson, Concrete Conduit Co., Colton, Calif., director; H. F. Peckworth, managing director, A.C.P.A.; and Harry S. Price Jr., Price Brothers Co., Dayton, Ohio, secretary-treasurer. Seated: R. V. Edwards, American Pipe and Construction Co., Los Angeles, Calif., director; P. R. Hirsh, Lock Joint Pipe Co., East Orange, N.J., vice-president; and Ray A. Foley, Gifford-Hill-American, Inc., Dallas, Tex., president.

1953 Board of Direction, American Concrete Agricultural Pipe Assn. Standing: R. W. Liston, W. T. Liston Co., Harlingen, Tex., vice-president; R. R. Reynolds, Van Cleve Construction Co., Exeter, Calif., director; G. F. Lillie, Platte Valley Cement Tile Mfg. Co., Scottsbluff, Nebr., secretary; and H. F. Peckworth, managing director, American Concrete Agricultural Pipe Assn. Seated: G. D. Williamson, Valley Concrete Pipe and Products Co., Yuba City, Calif., director; W. B. Freeman, Lock Joint Pipe Co., Denver, Colo., treasurer; and J. W. Porter, Gifford-Hill-Western, Inc., Dallas, Tex., president.

Concrete Institute Names Kennedy President at Boston Convention

DRAWING an attendance estimated at 1,000, the 49th annual convention of the American Concrete Institute was held at Boston, from February 17 to 19. The three-day meeting was filled with lectures, papers, motion pictures, and discussion programs covering virtually every phase of concrete technology.

Henry L. Kennedy, manager of the Cement Division of the Dewey & Almy Chemical Co., Cambridge, Mass., was installed as president of the institute for 1953. He succeeds Albert T. Goldbeck, engineering director of the National Crushed Stone Association.

A consulting engineer for many years, Mr. Kennedy has had wide experience in concrete work in the United States and in many foreign countries. In 1947 he was named to head a new course in cement and concrete technology at the Harvard graduate school of engineering. Mr. Kennedy has published several papers, one of which won the A.C.I. Herschel Award in 1947.

Franklin R. McMillan, a past-president of A.C.I., was awarded the Alfred E. Lindau Award in recognition of his contributions to reinforced concrete design practice. An honorary member of the institute since 1943, Mr. McMillan has long been active in the concrete field, having served 24 years with the Portland Cement Association until his retirement as director of research in 1948. He is a major contributor to the literature of concrete, and one of his works, *The Concrete Primer*, has been reprinted in many languages.

Robert E. Wilde, managing editor of the Journal of the American Concrete Institute, and F. Thomas Collins, winner of the A.C.I. Construction Practice Award.

Among other highlights of the meeting was the election to honorary membership of Roderick B. Young, assistant director of research for the Ontario Hydro-Electric Power Commission. A past-president of A.C.I., he has been active on committees and has published numerous papers on concrete. One of the original organizers of the National Ready Mixed Concrete Association, Mr. Young has also been chairman of the Committee on Concrete and Reinforced Concrete of the Canadian Standards Association. He was awarded the A.C.I. Wason medal in 1937, and won the A.S.C.E. Rowland medal in 1928.

Mrs. Roderick B. Young, Mr. Young, A.C.I. past-president and newly-elected honorary member; and F. R. McMillan, another past-president.

Charles S. Whitney of the consulting engineering firm of Ammann & Whitney, New York and Milwaukee, was doubly honored during the convention. Mr. Whitney was seated as the junior vice-president of A.C.I., to serve for two years, and then, in company with two business associates, received the Wason medal for the paper *Comprehensive Numerical Method for the Analysis of Earthquake Resistant Structures*. Mr. Whitney's associates in the award are Boyd G. Anderson, chief design engineer for the firm, and Mario G. Salvadori, consultant, professor of civil engineering at Columbia University.

The senior vice-president of the institute, Professor Charles H. Scholer, head of the department of applied mechanics at Kansas State College, also participated in the awards. Together with Gerald M. Smith, of the department, he received the Wason medal for noteworthy research for their report on the *Use of Chicago Fly Ash in Reducing Cement-Aggregate Reaction*. The investigators indicate that fly ash inhibits some types of cement-aggregate reaction, which causes the expansion of concrete that is accompanied by "map cracking".

A. T. Goldbeck, engineering director of the National Crushed Stone Association, retiring president of A.C.I., and H. L. Kennedy, Dewey and Almy Chemical Company, newly-installed president of the institute.

The A.C.I. Construction Practice Award, established "to recognize the man on the job for his resourcefulness in translating design into the completed structures", was presented to F. Thomas Collins of San Gabriel, Calif., for his paper *Tilt-up Construction in Western United States*.

A Mexican government official, Federico Barona de la O., head of the Technical Department of Materials in the Hydraulic Resources Ministry at Mexico City, was elected to a three-year term as director. Other new directors are Jay E. Jellick, manager of the San Francisco office of the Portland Cement Information Bureau; Arthur P. Clark, research associate of the American Iron and Steel Institute, who is at the National Bureau of Standards; and Vernon P. Jensen, staff consultant for C. F. Braun & Co., Alhambra, Calif.

The convention marked the premiere of a new film, *How to Make Quality Concrete*, presented at the opening session, and later in the week sent out over television. Sponsored by A.C.I. and the Portland Cement Association, the half-hour motion picture, in full color, was introduced by Professor James A. McCarthy of Notre Dame University, chairman of the A.C.I. film advisory committee, which supervised its preparation.

Canadian Block Makers Gird for Buyers' Market at Toronto Meeting

"LET'S forget our backyard past and recognize that we are a major part of the construction industry, with a brilliant future ahead of us" . . . this was the theme of the fourth annual convention of the National Concrete Products Association of

By JOHN P. FLYNN

Canada, held at Toronto, February 9-10. The comparatively new trade group has made remarkable strides since its foundation in May, 1949, a fact sharply outlined by the attendance of nearly 300 persons from all over the Dominion. The caliber of the convention program and the solid progress reported by association officials gave ample evidence that a progressive new force was at work in behalf of the Canadian concrete industry.

Vice-president Garnet Fraser (Cross Supplies, Windsor, Ont.) was elected to the presidency of the group, succeeding W. C. Coupland (Argo Block Company, Cooksville, Ont.), who retired after heading the organization for two years.

Every problem basic to the nation's concrete block industry was thoroughly discussed during the two-day meeting. Speakers from outside the organization included the president of the National Home Builders Association, a representative of the Royal Architectural Association, a member of the National Research Council's Building Practice Section, and several others.

The Canadian cement industry sent two of its top men to appear on the convention program. J. M. Breen, president of Canada Cement Company, spoke during the closing session, and James Counsell, sales manager of St. Mary's Cement-Alfred Rogers, Ltd., appeared earlier on the program.

The concrete block industry in the United States was well represented at the Toronto meeting, the attendance list including E. W. Dienhart, executive secretary of the National Concrete Masonry Association; N.C.M.A. Director Philip Paolella (Plasticrete Corp., Hamden, Conn.); and N.C.M.A. Past-president Fred W. Reinhold (Anchor Concrete Products, Buffalo, N. Y.).

The membership of N.C.P.A. now stands at 197 firms, the convention was informed by its volunteer executive secretary, Robert Davidson. Representing roughly half the nation's concrete manufacturers, the group produces better than 85 per-

Garnet Fraser, Cross Supplies, Windsor, Ont., who was elected president of the National Concrete Products Association of Canada at the group's fourth annual meeting.

cent of Canada's total output; and annual production is valued at about $150,000,000, the speaker said.

The future of the concrete industry is tremendous, Mr. Davidson told the meeting. In ten years it has mushroomed from a small and remote backyard business into a modern, streamlined, big-league industry, and its potential is still untouched.

Drawing from his experience as executive officer of several other trade associations, Mr. Davidson warned the concrete manufacturers that "to be apathetic, to be content to 'take orders' instead of preparing to 'sell', to be critical of the organization, and to fail to lend it financial and moral support—this reflects a decadent mind that will only result in the slow death of any industry, no matter how strong."

With the approval of the N.C.P.A. executive body, he outlined a program designed to accomplish the following objectives: (1) get the concrete manufacturer his share of the nation's bulding dollar—a much larger share than he is getting today; (2) raise the mind of the industry above the basement by convincing the builders and the public of concrete's value as a general structural and decorative material as well as a basement material; (3) secure the legislation necessary to assure a market for concrete masonry products in districts which at present restrict it; (4) establish standards within the industry; and (5) help the individual concrete manufacturer to better run his business by the interchange of information on supplies, labor, markets, and production techniques, by the development of group services, insurance, and pensions, and by promoting the virtues of concrete masonry among architects, engineers, builders and others who specify materials.

Implementing this program, the association has begun the publication of a magazine that will carry the story of concrete and its many values and widespread applications to every individual in the Dominion who is in a position to influence the selection of concrete masonry in preference to other building materials. A tentative promotion budget was offered to the convention, calling for the expenditure of $4,000 for publicity projects. This amount would be expended thus: half (or $2,000) for an architectural contest; another $1,000 to underwrite the preparation of technical data on concrete products needed by architects and builders; and the remainder in promotional advertising in building and business publications and in promotion to allied trades.

Elected to serve with Mr. Fraser for 1953 were the following: John T. Pennachetti (Thorold Concrete Block Company, Thorold, Ont.) first vice-president; and W. H. Kirkpatrick (H. & K. Supplies & Concrete Specialties, Woodstock, Ont.) second vice-president. Past-president Alec D. Wylie (Economy Fuels, Hamilton) succeeded Mr. Kirkpatrick as secretary, and Brant Coleman (J. Cooke Concrete Block Company, Aldershot, Ont.) assumed the office of treasurer formerly held by Gus Marker, Kingston, Ont.

Mr. Marker joined the board of directors, along with R. E. Johnson (L. E. Shaw, Halifax), L. Scholes (Gormerly Block Company, Gormerly, Ont.),. C. S. Hadley (Hadley-Moulthrop, Chatham, Ont.), R. Cooper (Cooper Block Co., Toronto), R. Thompson (Woodstock, Ont.), Murray Henderson (Ottawa), and Ross Jeffries (Jeffries & Sons, Calgary).

Hold-over directors include the following: Carson Luke (Paris Dunbrick Co., Paris, Ont.), L. G. Des-

Left to right: W. H. Kirkpatrick, H & K Supplies & Concrete Specialties, Woodstock, Ont.; John T. Pennachetti, Thorold Concrete Block Co., Thorold, Ont.; Philip Paolella, Plasticrete Corp., Hamden, Conn.; and Fred W. Reinhold, Anchor Concrete Products, Buffalo, N. Y. Mr. Kirkpatrick and Mr. Pennachetti were elected vice-presidents of the Canadian association.

Left to right: Russell Mayotte, Concrete Products, Ft. William, Ont.; E. W. Dienhart, executive secretary, National Concrete Masonry Association, Chicago; and Brant Coleman, J. Cooke Concrete Block Co., Aldershot, Ont.

Brisay (Blakeny Concrete Products, Moncton, N. B.), Russell Mayotte (Concrete Products, Ft. William, Ont.), J. F. Boux (Boux Concrete Works, St. Boniface, Man.), R. F. McCleery (Vancouver, B. C.), and A. Miron (Miron & Freres, Montreal).

The N.C.P.A. is recognized by the Canadian government as the official voice on concrete manufacturing matters. Mr. Coupland told the convention, reporting that at the request of federal authorities, N.C.P.A. is now ably represented on the National Building Code Committee and on the Canadian Standards Committee. In addition, the association holds a watching brief for the industry on all legislation affecting it.

"Standing together united, we have been able to work wonders in reaching the official mind with the story of concrete and its value as a building material," Mr. Coupland told the group. He praised the untiring efforts of the executive committee, the board of directors, and of Mr. Davidson to make the association function well and to gain for the industry a strong voice in the councils of government and building.

Bringing the greetings of concrete manufacturers in the United States, Mr. Dienhart told the many ramifications of association work, as practiced by N.C.M.A. in promoting the use of concrete masonry. Every trade association has a big job to do for its industry, he told the group, but this work requires dollars, for "you can't build with peanuts". Mr. Paolella advised the group on several of the problems that must be faced in selling concrete block as an acceptable building material, and in convincing the industry of the need for a strong, well-supported trade organization.

Practical advice on specific concrete manufacturing applications that would extend the scope of the Canadian block producer was given in an illustrated lecture by Mr. Reinhold. He used stereoslides to show several new departures, among them precast roofing, multiple slab production, prestressed members, and color casting. Particularly impressive to his audience were the number and variety of building structures erected in their entirety with concrete masonry products.

"Think of concrete block as an exciting plastic material having properties such as few materials have; and constantly reiterate that you have the best building material on the market," Earl L. Sheppard of the Royal Architectural Association told the concrete producers. "Always put the quality before price," he warned. "Be truthful in your comparisons, and avoid imitating other materials."

"Modular planning in construction is the coming thing, and we will get the majority of building materials on a modular basis yet," Mr. Sheppard said. He advised the manufacturers to investigate seriously the possibility of making a strictly architectural block and to experiment with finishes, size, etc., in developing marketable block. He reiterated the importance of quality in the product . . . "deliver accurate blocks, reduce delivery breakage, and eliminate defects, for there is no reason why we should cover concrete units with stucco!"

"House building in Canada will be a problem for at least a decade, probably longer," W. H. Grisen-

Officers and directors of N.C.P.A. Standing: C. Luke, Paris, Ont.; W. Thompson, Woodstock, Ont.; R. Mayotte, Fort William, Ont.; P. McPherson, Weston, Ont.; L. G. DesBrisay, Moncton, N.B.; and G. Henderson, Oshawa, Ont.—all directors. Seated: W. Coupland, Cooksville, Ont., retiring president; A. Wylie, Hamilton, Ont., secretary; W. Kirkpatrick, Brantford, Ont., second vice-president; G. Fraser, Windsor, Ont., president; J. Pennachetti, Thorold, Ont., first vice-president; and B. Coleman, Aldershot, Ont., treasurer.

thwaite, president of the National Home Builders Association, told the convention. We are short an estimated 500-750,000 homes, said he, forecasting the production of 130,000 units by 1955.

"We builders are the showcases for your materials, your retail outlet," Mr. Grisenthwaite pointed out. "Since we are today in a buyers' market, we all must use a merchandising approach that offers a home that is well designed, well produced, and desired by our consumer market."

Citing the present and future economic and legislative problems facing the home building industry, he urged that all the industrial groups involved work together to overcome mutual problems.

"If we are to make any considerable dent in the cost of construction modular co-ordination must be applied to materials and building practices," Walter Ball of the building practices section of the National Research Council informed the block makers. Pointing out that most of the basic research has already been performed in the United States, he urged that "we all pitch in and do all we can to smooth the way for modular units in this country."

Masonry products have "too many claims", Mr. Ball told his listeners, urging that they sell their products on their true properties, which, if properly presented, are extremely attractive to the building industry.

"Concrete brick production is growing faster than any other phase of the industry," Carson Luke told his associates, outlining several of the problems peculiar to this specialty. From a production of 100,000 units in 1942, concrete brick rose to 48,000,000 last year. Mr. Luke warned of using too strong a mortar mix, lest a monolithic wall result, and advised his hearers to use a 1-3-9 cement, lime, and sand ratio.

"We can look forward to a fine degree of success if we adopt standards for our products and constantly improve quality," incoming president Fraser told his audience. "By standardizing, we save waste, transportation, labor, raw material, etc., and we help develop an honest competition, which in turn works for constant betterment of our product and of our service to the public." A resolution adopted by the convention urges the adoption of standard nomenclature and sizes throughout the industry.

According to Maurice B. Dix, president of Interprovincial Building Credits, Ltd., "the homeowner is the cream of credit risks". He outlined the firm's program for underwriting with private capital the work done to the nation's homes. I.B.C. underwrites the construction or repair, pays the builder and is repaid by the homeowner at a very low rate of interest. Many divisions of the building trades are affiliated with I.B.C., and Mr. Dix, seconded by Mr. Davidson, urged the concrete block producers to "join up".

Among the resolutions passed formally by the convention was one asking the federal government "to foster conditions favorable to production of 125,000 dwelling units per year by providing mortgage finance facilities which will permit approved lending institutions to offer N.H.A. mortgages with 10 percent down payments and 30-year amortization periods".

Another resolution urged the government to increase the present program of selective immigration year by year in order to achieve a minimum population of 25,000,000 within the next 15 years, with emphasis on bringing in persons able and willing to develop the nation's natural resources.

Concrete Pipe —
(From page 162)

change from a square-edged to a round-edged inlet permits the pipeline to flow full, shifting the control to the friction loss in the barrel of the conduit,

In a paper entitled *Ohio's Experience in Testing Concrete Pipe,* Colonel R. R. Litehiser, chief engineer of the Ohio State Highways Testing & Research Laboratory, described the testing methods and procedures used at the Columbus laboratory. His talk was illustrated.

In the annual "jam session", a feature of meetings in recent years, there was free exchange of ideas on manufacturing and use of concrete pipe. Industry leaders from across the nation and Canada comprised discussion panels for separate morning and afternoon sessions. Moderators for these informal discussions were J. J. Seale of California and C. A. Bluedorn of Iowa.

Two closely affiliated groups, the American Concrete Agricultural Pipe Association and the American Concrete Pressure Pipe Association, also met at the Hotel Baker in Dallas during the same week. Members of the specifications and technical problems committee of the agricultural group met on February 24 with representatives of the Bureau of Reclamation for a discussion of mutual problems. The discussion was conducted by E. T. Johnson, chairman of the committee, and the association was represented by G. F. Lillie of Nebraska, G. D. Williamson of California, William B. Freeman of Colorado, Hugh B. Ford of Oregon, and J. W. Porter of Texas. The Bureau of Reclamation was represented by Howard G. Curtis, head of the Canals and Pipeline Section, Frank E. Rippon, assistant chief of the Canals Branch, and Lewis H. Tuthill, Bureau concrete engineer.

On the day following the committee discussion Mr. Tuthill and Mr. Curtis presented before the group papers entitled *Some Technical Items Relating to Concrete Pipe* and *Bureau of Reclamation Specifications for Concrete Pipe.* Mr. Tuthill's paper discussed the Bureau's findings in respect to methods of curing and backfilling, and in the use of calcium chloride as an accelerator during cold weather operations.

At the close of the meeting J. W. Porter, Gifford-Hill-Western, Dallas, was re-elected to a second term as president of the association. R. W. Liston was elected vice-president, and G. F. Lillie and William B. Freeman were re-elected to the offices of secretary and treasurer, respectively. R. R. Reynolds was elected to the board of directors to serve with members Earl H. Eby and G. D. Williamson, who were re-elected.

Members of the pressure pipe group in their separate sessions elected the following officers to serve for the forthcoming year: president, Ray A. Foley, Gifford-Hill-American, Dallas; vice-president, Philip R. Hirsh, Lock Joint Pipe Co., East Orange, N. J.; secretary-treasurer, Harry S. Price Jr., Price Brothers Co., Dayton, Ohio; directors, Elmer L. Johnson, Concrete Conduit Co., Colton, Calif., and Robert V. Edwards, American Pipe and Construction Co., Los Angeles.

Highlight of the pressure pipe session was the presentation of a paper entitled *History of Concrete Pressure Pipe in Texas* by S. W. Freese, consulting engineer of Fort Worth.

Concrete Supply Company, Charlotte, N. Car., is having a new ready-mix plant built to supplement the two now in production.

The new plant will be a central mixing type with a four cu. yd. tilting mixer, and will be able to produce any mix.

Autoclave Products Group Holds 47th Annual Convention at Richmond

another ON THE SPOT report

RICHMOND, Va., was the scene of the 47th annual convention of the Autoclave Building Products Association on March 1, 2 and 3. Sessions were held at the Jefferson Hotel. Although the weatherman staged a heavy snowfall for the occasion, the members and their wives and other guests pronounced the convention an interesting and enjoyable event.

At the first session, in charge of President Elmer R. Coats (Mutual Materials Company, Seattle, Wash.), members were welcomed to Richmond by Jack W. Lacey of the Concrete Building Units Company. An address on lightweight building units by R. C. Valore of the National Bureau of Standards, Washington, D. C., opened the convention program. During the talk the speaker showed samples of concrete containing materials he described, and his hearers were given an opportunity to participate in an open discussion.

The second speaker, James B. Frysinger of the Pennsylvania Glass Sand Corporation, Pittsburgh, Pa., presented an account of the production of silica from his firm's quartz deposits. Slides were shown of quarrying and processing operations.

A conducted tour through the Chesterfield plant of the Liggett & Myers Tobacco Company was a mid-day feature.

During the afternoon Dave Wisdom of Krete-Koater Service, Hillsboro, Ill., discussed his firm's process of coating concrete masonry units. His talk was also illustrated with slides showing the equipment used. Facts and figures concerning the process were brought out during the discussion which followed Mr. Wisdom's remarks.

H. D. Robertson, president and manager of the Harbour Brick Company, Ltd., Toronto, Canada, gave an interesting account of the production of sand-lime brick and block in his plant. He discussed sources of raw material, process, and equipment, stressing certain machinery which had been found particularly durable and satisfactory.

Advertising and sales promotion material for the industry was a topic ably presented by Gordon S. Maynard, district engineer, Portland Cement Association, Richmond. He urged the members to make use of P.C.A.'s facilities for publicity and sales promotion to expand their markets.

John K. Selden of the University of Toledo gave a brief review of the university's autoclave investigations

Dale Cobb, new president of the Autoclave Building Products Association.

and research. Since he could not complete his address that afternoon because of lack of time, a part of the discussion was postponed until the next day. At this second session Mr. Selden mentioned cement content, curing, and aggregates; he also discussed coating tests, research, autoclaving methods, equipment, and design.

The Chemistry of Autoclave Building Products was a facet of the industry covered by Richard B. Peppler, chemist, National Bureau of Standards, Washington, D. C., who based his talk on tests with materials in their pure state. The studies he cited included tests on temperature, stability, and solubility. In the discussion which followed an attempt was made to interpret this technical information in a way that would be helpful to the producer in meeting specific problems.

In his address on needed research on autoclave curing Mr. Selden discussed the following points: reducing costs, improving quality, and using substitute materials to replace scarce cement. He also stressed the advisability of longer test periods. The possibility of developing standard specifications for autoclaving was briefly discussed.

The annual election of officers followed Mr. Selden's talk. When the members were called to order for the afternoon session, it was announced that Dale Cobb had been elected president for the year 1953-54. Other officers chosen included Leo Ryan (Ryan Builders Supplies, Ltd., Windsor, Ont.), vice-president (re-elected); and Henry D. Geus III (Saginaw Brick Company, Saginaw, Mich.), secretary-treasurer. Ralph Cromis was named chairman of the concrete products section, and Elmer R. Coats was appointed chairman of the sand-lime products section.

Speakers at the afternoon session were R. E. Siedle, vice-president of the American Truck & Body Company, Martinsville, Va., and Harry W. Easterly Jr., executive vice-president of Concrete Pipe and Products Company, Inc., Richmond. Mr. Siedle's talk covered intraplant and other hauling problems, with particular reference to brick and block transportation. Mr. Easterly discussed the work of the newly re-activated A.C.I. Committee 716, headed by Dr. Hansen of the Universal Atlas Cement Company. He described the test conditions and some of the findings and stated that the committee will soon prepare a report which will cover the tests in detail.

After Mr. Easterly's report the members were taken on a tour through his plant, during which he and his associates answered questions and gave explanations of various steps in the manufacture of pipe and other products. Several members remained in Richmond after the close of the convention to visit Mr. Lacey's plant—the Concrete Building Units Company—and observe it in operation.

It was announced that the next convention of the association will be held in St. Louis, Mo., at a date not yet determined.

Mid-State Sand, Inc., Hamilton, N.Y., has filed articles changing its name to Mid-State Concrete Plank, Inc.

The Long Concrete Company, Benton, Ky., recently installed a Columbia block machine of 400 block per hour capacity. This machine will double the capacity of the plant at Benton. The company also operates a block plant at Calvert City.

Safety Saves
(*From page* 161)

3. Know and stay within rated capacity of truck.
4. Watch overhead clearances.
5. Report evidence of faulty truck performance.
6. Keep clear of edge of loading dock.
7. Never travel with forks raised.
8. Don't haul unauthorized riders.
9. Watch blind corners. Stop at intersections and sound horn.
10. Be sure bridge plates into trucks or box cars are sufficiently wide, strong, and secure.
11. Lift, lower, and carry loads with upright vertical or tilted back, but never forward.
12. Watch rear end swing.
13. Use slowest speed when descending ramps.
14. Turn switch key off and secure brakes when leaving machine.
15. Place forks flat on floor when truck is parked.
16. Never place arms or legs between the uprights of the mast or outside the running lines of the trucks.
17. When checking a gasoline-powered truck, use safety light and not a match.
18. Report accidents immediately.
19. Don't daydream.
20. Operate at safe speeds.
21. Brake to full stop before changing direction.
22. Watch for unstable loads.
23. Inspect floors of boxcars and trucks carefully.
24. Never tow freight cars.
25. Keep load against carriage.
26. Lower loads slowly, stop them gradually.
27. Don't lift or lower loads while traveling. Travel with loads about 6-in. off the floor.
28. Don't park on a ramp unless necessary, and then set brakes or block wheels.
29. As a major slogan, remember that *only fools break safety rules.*

Motorola Inc., has announced the appointment of Angus A. MacDonald to the position of assistant chief engineer in charge of two-way radio development.

In this position, he heads a group of design engineers in the development of mobile two-way radio equipment for use in the public safety, land transportation, industrial and related fields.

Prior to his assignment to Motorola's devleopment activity, Mr. MacDonald formerly was a section mnaager with the Westinghouse Electric Corporation.

How to lift 500 lbs. of concrete blocks with your thumbs

● Fantastic? Not in the least, if you own a Bros Material Handler. This new labor-saving machine (perhaps you saw it at the Concrete and Masonry Show) works like this:

A smooth-working electrically powered hoist travels on a swinging overhead monorail. Two push buttons on the lifting column (where the operator puts his thumbs) control loads up to 500 lbs. Lifting is smooth, easy and safe. Standard two-prong fork fits any cored block and various palletized materials. Other attachments can be supplied for other uses.

You'll marvel at what this Bros Material Handler can do for your operation. One man can now load and/or unload concrete blocks or other concrete products in *half the time* at less than *half the cost* as compared with a normal two-man crew working manually. Think of the savings in time . . . in labor . . . in handling cost. And you say goodbye to breakage complaints—the Bros Material Handler assures maximum freedom from breakage in handling.

You'll want more detailed information. Write for new literature on the amazing Bros Material Handler.

The same basic Bros Material Handler unit will fit all 12', 14', 16' and 18' truck bed lengths. It is easy to mount. A heavy-duty bed of all-steel construction is available at extra cost (shown right). Special monorail anchor at rear is removed for loading or unloading.

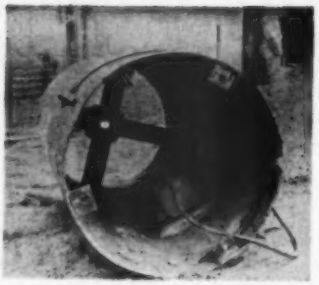
WM. BROS BOILER & MFG. CO.
MINNEAPOLIS 14, MINNESOTA
Also manufacturers of the Lectro-Lift Material Handling Truck Body

New Vibrator Speeds Manufacture of Large Reinforced Concrete Pipe

A development of possibily far-reaching importance in the manufacture of concrete pipe occurred in Dallas, Tex., on February 20. In a demonstration at the Dolch Concrete Pipe Company's plant 27-in. diameter 3-ft. long reinforced concrete culvert pipe were manufactured on a production basis using a new type of vibrator in conjunction with a tamp machine.

The machine, which was operated without the tampers, was of the type in which the inner core is stationary, and the reinforcing cage, together with the outside jacket, revolves on a platform. Operated in the conventional manner, this machine had formerly produced a 27-in. diameter reinforced pipe in 6 to 6½ minutes, compared with an elapsed time of less than 1½ minutes when the new Vibromac vibrator was used.

Developed by George W. Hoffmann, export manager of the Concrete Pipe Machinery Company, the Vibromac has been tested extensively at the Dolch plant in Dallas. In the recent demonstration the vibrator was fastened to the inside core of the pipe machine just above the half mark. With the form rotating around the inner core, about a third of the concrete was placed before the vibrator unit was started. Vibration was then continuous until the pipe was completed, whereupon the inner core was stripped vertically and the pipe was removed along with the outer jacket in the conventional manner.



● View showing location of vibrator within

The process is said to have an important effect upon quality, as well as quantity, of production. Among the qualitative advantages claimed are the formation of a definitely heavier waterweb of cement-water slime, and a marked improvement in compaction. Mix proportions used in the demonstration were the same as would have been employed in

● Section of reinforced pipe made by the new process.

the manufacture of pipe by the tamp process, but the water content of the concrete was increased approximately 12 percent.

It is believed that the Vibromac technique of manufacture is particularly well adapted to site manufacture of large-diameter concrete pipe as a means of eliminating costly transportation without entailing any sacrifice in respect to the quality obtainable under factory conditions. The new vibrator will be marketed by the Concrete Pipe Company.

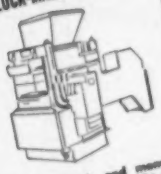
At Dodge City, Kans., Ed O'Dell recently became a partner with Ray Broce in a ready-mix concrete plant operated by the Broce Construction Company. The new firm will be known as Broce-O'Dell Concrete Products. Installation of a concrete block plant is planned in the immediate future. Mr. O'Dell will take over active management of the new operation.

Officials of Marble Face Blocks, Inc., Kenilworth, N. J., have announced two promotions. Chester B. Locklin is now vice-president and chief engineer; and John J. Reilly, formerly assistant sales manager at the plant, is sales manager.

EXCEEDS 4 CYCLES per minute!

Columbia
New, Fully-Automatic
3 BLOCK

Columbia LINE MACHINES FOR THE BLOCK-MAKING INDUSTRY



- Fully automatic and manual block making machines, 2 and 3-block capacities.
- Automatic Block Splitters.
- Batch Mixers, 12, 18, 25 and 50 cubic foot sizes.

Write for information on complete Columbia line today!

...gives you fast, profitable production of quality blocks on a low cost basis!

Columbia's rugged construction, precision tooling, concealed parts, keep maintenance costs down and step-up production standards to a new, profitable high! Here are more reasons why Columbia's new 3-block machine gives outstanding performance: Standard Plain Pallet • Removable Plunger • Controlled Vibration • Hydraulically Operated • Manual Controls for Clean-up • Automatic Height Control • Twenty-Minute Mold Change. These and more make Columbia the leader in its field!

NATIONWIDE SALES, PARTS AND MAINTENANCE SERVICE with headquarters in the following states: Washington, California, Wisconsin, Mississippi, New Jersey, Florida, South Carolina, and Virginia. Fast service maintained to all parts of the country. Write today for additional information.

Columbia MACHINE WORKS
107 SOUTH GRAND • VANCOUVER, WASH.

San Francisco Voted . . .

(*From page* 157.)

Merchandising Methods Other speakers at the session further developed the sales and merchandising theme, including Harold E. Shelby (Concrete Supply Co., Charlotte, N. C.) and Robert F. Porter (Harry T. Campbell Sons Corp., Towson, Md.). Mr. Shelby recited some of the pitfalls in selling concrete strictly on a strength basis, pointing out also the desirability of having an experienced, recognized concrete technician on the staff to adjust mixtures, keep abreast of new technical developments, etc. Such a man, he declared, is of inestimable value in advising engineering and construction men of knowledge which can ease their tasks, speed up work, and save money for the customer . . . all good from the public relations viewpoint and conducive to building good will and future sales.

Mr. Porter's company produces and sells one of the most diversified lines in the business, covering 105 different and distinct items. Educating salesmen to know these products and their markets is a complex task, he admitted, but by relying strictly on the basic technique of selling, good results have been obtained.

Some of the points he stresses when choosing and training sales personnel include good background, good personal appearance, and a winning personality. "Educate this man so that he is familiar with all the products you produce, not merely those which he is to sell, and encourage him continuously. Sell him on the idea that he is selling for the best company of its kind," he said.

Cost Determination *Cost Determination in the Ready-Mix and Sand & Gravel Industries* by John W. Murphy (Union Sand & Gravel Co., Spokane) was one of the most informative papers ever delivered before a convention of these industries. While Mr. Murphy went thoroughly into the subject, carefully analyzing the various systems which may be employed to advantage, he touched upon some other important points which impressed his listeners.

Without adequate cost records, Mr. Murphy defied any producer to know that the cost of operating his batching plant, or the digging end of his gravel plant might have increased two or three cents per cubic yard in October, 1952, over the same month in 1951. Two or three cents isn't much, he admitted, but multiplied by 10,000 or 20,000 yards it runs into a substantial figure. Even more important, maybe the actual increase isn't two or three cents . . . it might be 20 or 30 cents. With a cost system that comparison between periods can be made accurately and immediate steps taken to correct excess costs.

In keeping plant costs, he urged the maintenance of a perpetual cement inventory. Scales do develop trouble, he declared, citing the fact that a few years back his own company lost a substantial amount of cement due to scale failure. From the delivery tickets, calculations are made each day of the amount of bulk cement which *should* have gone into the concrete turned out. "Each of our plant operators has a scale showing the amount of cement in his silos and checks are made constantly of the actual use of cement against the calculated use. If the inventory does not show up accurately—in other words, if the overage or shortage is too great, there is a thorough investigation. In addition, we check each cement scale weekly with our own test weights . . . all an integral part of our cost accounting system."

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Lintelators are available with special motor driven mechanical vibrators which reduce noise.

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SUPER LINTELATORS Make lintels 7⅝" HIGH by 3⅝" 5⅝" 7⅝" 9⅝" 11⅝" WIDE in these lengths.		STANDARD LINTELATORS Make lintels 7⅝" HIGH by 3⅝" 5⅝" 7⅝" WIDE in these lengths.	
S 6	2'8" up to 6'	No. 6	2'8" up to 6'
S 7	2'8" up to 7'4"	No. 7	2'8" up to 7'4"
S 8	2'8" up to 8'8"	No. 8	2'8" up to 8'8"
S 9	2'8" up to 9'4"	No. 9	2'8" up to 9'4"
S10	2'8" up to 10'8"	No. 10	2'8" up to 10'8"

Concrete sills and lintels are "pacing" the steady demand for concrete block.

Lower "on the job" installation cost is a strong factor influencing profit conscious builders.

You can do as hundreds of others have and put the complete KENT line of concrete-products machinery to work for your "cash" benefit.

You can sell more KENT-MADE blocks, sills and lintels.

The KENT MACHINE COMPANY
CONCRETE PRODUCTS MACHINERY
Cuyahoga Falls, Ohio

Trade Literature

Wagner Tractor Loaders. Model WM-3. Form No. 174A. This four-page folder covers the loaders built especially for use on Case VA, VAC, and VAI tractors. The mounted unit is shown and the specifications are given on the cover. The inside spread shows mounted units on two models of tractors while line drawings show the many attachments available such as scoops, blades, forks, crane hooks, and snow plows. The text presents the general features of the line and indicates some of the types of service for which it is adapted. Wagner Iron Works.
Our Identification No. 101.

Jeffrey Belt Conveyors. Catalog 852. Ninety-two pages of photos, drawings, diagrams, tables, charts, and text make up this large catalog on belt conveyors. The foreword calls it a handbook of belt conveyors. It contains the latest designs of belt conveyor details and complete engineering data for any application. Large pictures of outstanding installations are shown. Some of the headings are: belting; belt cleaning brushes; capacities; cast iron pulleys; cast iron idlers; drives; feeders; holdbacks; horsepower tables; idlers; inclined conveyors; method of loading belts; pulleys; self-aligning idlers; spacing of idlers; conveyor speeds; stackers; take-ups; trippers and wipers. Jeffrey Manufacturing Company.
Our Identification No. 102.

Rainbow Rock Provides the Key to Economical Modern Building. This single sheet shows a home constructed of the material and explains the points of advantage. The machine for making the concrete rock is shown and described, and some of the markets are pointed out. Specifications and production figures are given. General Engines Company.
Our Identification No. 103.

D-40 in Concrete Block Manufacture. Technical Manual Page 80-E 20.2. A single page makes up this information sheet. Illustrations show the results of using the air entraining agent made by the company while the text gives advantages, properties, application and operating notes. Oronite Chemical Company.
Our Identification No. 104.

Waylite. Suggested Details of Waylite Masonry Wall Construction. Ten of the sixteen pages of this bulletin are devoted to scale drawings of typical masonry wall construction using concrete blocks. Footings, framings, control joints, intersecting walls, ducts and conduits, floor and roof framing, cavity wall opening and corners are some of the page headings. Two pages show photos of finished walls for exterior and interior. The back cover has illustrations of some outstanding use of Waylite blocks in interior use. The Waylite Company.
Our Identification No. 105.

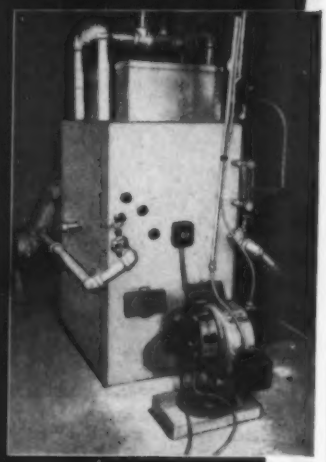
Besser Block Cutter. Bulletin No. 95. This four-page folder illustrates and describes a hydraulically operated block splitter for the production of split concrete block. In addition to showing the machine in different views, uses of the split block are illustrated and diagrams are included to show the types of blocks that can be produced on the machine. Besser Manufacturing Co.
Our Identification No. 106.

Concrete Facts From Praschak Machine Company. Illustrations of the plant and the officials of the firm fill the first page of this mailing folder. The center pages illustrate the types of machines produced such as block machines, hammermill, elevator, conveyor, rotary screen, mixers, and lift truck. Features are pointed out and prices are given. The back page is a questionnaire designed to help in maintaining the mailing list. Praschak Machine Company.
Our Identification No. 107.

Volcolite Structural Concrete Aggregate. This small size folder summarizes the advantages of a pumice aggregate for use in structural concrete. Test results are cited and other literature is offered. Pumice Inc.
Our Identification No. 108.

CURE in 2 HOURS OR LESS!

Revolutionary! The CONSOLIDATED DUO BOILER generates saturated and super-heated (dry) steam in rotation. The dry steam, following saturated, produces a drier, firmer unit without additional curing agents! Now you can actually stack and ship your blocks immediately after curing. CONSOLIDATED DUO BOILERS are breaking records and making cement block history right now! Think of it – you can cut your curing time down to 2 hours – in some cases, less. It will pay you to write us today!



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30 Huntington Ave., Boston, Mass.

Sheppard Diesel Industrial Tractors. Bulletin No. A5201-I. This four-page folder illustrates a diesel tractor in several applications. Front end buckets, forks and blades are shown as well as a rear end digger, and a haulage unit. Specifications of four sizes of tractors are given. Sheppard Diesels.
Our Identification No. 109.

Flexible's Line of Tubing. Catalog C2-3. This folder describes a line of flexible tubing in sizes from less than 1 in. to 30 in. The line consists of tubing and ducting that is used for dust and fume removal, materials handling, ventilation and similar uses. The characteristics of the various kinds are given and the availability of specialized literature on each type is listed. Illustrations show typical applications. Flexible Tubing Corporation.
Our Identification No. 110.

Everything for Safety. Catalog 100. This 144-page catalog describes face shields, welding helmets, skin protective coatings, safety clothing, machine guards, first aid supplies, and just about everything likely to be needed in a plant for safety. The Boyer-Campbell Company.
Our Identification No. 111.

Protective Coatings—Their Applications and Methods of Use. This catalog presents facts about protective coatings and their industrial applications. The use of the materials to repair conveyor belts and to protect equipment from abrasion and corrosion is described. The line of coatings is listed and applications suggested. Instructions for using the several kinds of coatings are given. Magic Chemical Company.
Our Identification No. 112.

Bailey Instrument and Controls for Process Industries. Bulletin 17-D. The eight pages of this bulletin cover the instruments and controls in six groups: process controllers, electronic and mechanical; control components, relays, valves and drives; control systems, one-two- and three-element type; measuring components, temperature, pressure, flow, level, smoke density, gas analyzers, etc.; and instrument combinations, for indicating, recording and integrating. Bailey Meter Company.
Our Identification No. 113.

How to Solve Process Dust Problems. Bulletin B-101. This is a six-page folder that uses diagrams, photos, charts, and graphs to bring out the features of a multiple miniature cyclone type of dust collector. Many different installations are diagrammed and a partial list of prominent users is given. Some typical plant installations are shown and described. Dustex Corp.
Our Identification No. 114.

The Lubrication of Fafnir Ball Bearings. Form 426. The basic reasons for lubricating ball bearings are presented in this eight-page bulletin. Choice of oil or grease is covered and recommendations for the use of each is covered. Drawings of bearing and housing designs show the method of lubricating and the text points out the preferred applications and the features. The Fafnir Bearing Company.
Our Identification No. 115.

Marco Standard Tubular Frame Conveyors. Bulletin SF-1. A tubular frame conveyor is the subject of this eight-page bulletin. The center spread of the booklet illustrates the component parts of the conveyor with close-ups showing some of the construction details. Typical installations are illustrated and two pages are used for a table and diagram giving sizes and dimensions. Accessories for special applications are shown. The use of pre-engineered assemblies is explained and the advantages cited. The text brings out the points not covered by pictorial material. E. F. Marsh Engineering Co.
Our Identification No. 116.

Kennedy Pneumatic Transport Systems. Bulletin No. 52-F. A dual purpose is accomplished by the twenty pages of this booklet. First, the reader is introduced to the company and its facilities, and second, to the several types of pneumatic transport systems that are being made by the firm. Covered are an automatic transport pump, manual pneumatic transport pump, air activated shipping containers and air conveyors. Several installations of note are shown. A complete list of equipment manufactured by the company is given. Kennedy Van Saun Manufacturing and Engineering Corp.
Our Identification No. 117.

The Goodyear Story. The twenty-four pages of this booklet present a condensed history of the company. The growth of the company from its inception to the present is covered. Photos show the original plant and the more than 43 plants all over the world of the present. Research, and product development are covered and the principles of the company are explained. This is an interesting story of the growth of a major company and of its spread to all parts of the world in search of materials and markets. The Goodyear Tire and Rubber Company.
Our Identification No. 118.

Opening of two subsidiary manufacturing plants in Dunkirk, Ohio, and Coldwater, Mich., has been announced by The Transmission & Gear Company. Designed to increase production facilities for the Deluxe Transo Mixer, Transo Load Champion Truck Mixer, and the Transo Load Master Front-End Loader, this latest expansion was completed without hindering production at the company's main Dearborn plant.

Transo Products, Inc., located in Dunkirk, is devoted solely to manufacture of the company's truck mixers which range in drum capacity from 3 cu. yd. to 6½ cu. yd.

The slightly larger Coldwater subsidiary, Transo Manufacturing Company, is engaged in engineering and production of the Transo Load Master Front-End Loader.

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"Our trucks aren't moving because our concrete aggregate materials are getting 'stuck'. What can we do?"
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National Conveyor & Supply Company

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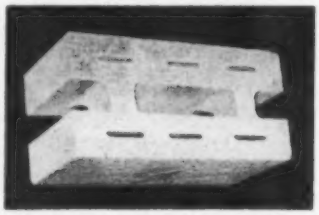
NEW MACHINERY and SUPPLIES

● New Type Block

A new type block for use in standard wall construction has been invented. The block consists of two slabs joined by a two 3-in. high arch-type webs; each slab contains three vertical cores which



taper from ¾ by 3 in. to ⅜ by 3 in. at the top.

The new block weighs 35 lbs. when made with a 3:1 cinder-sand mix and a 7:1 cement ratio. Tests at 28 days averaged 1,757 p.s.i. over the gross area.

The advantages claimed for the block are: larger load bearing area; greater insulating value due to the three parallel air spaces; and the accommodation of conduit, piping and reinforcing in both directions.

The cost of production is said to be the same as for standard block. The new style block was invented by Meyer Lapidus, 9031 E. Hamilton Parkway, Brooklyn 9, N. Y.

Our Identification No. 119.

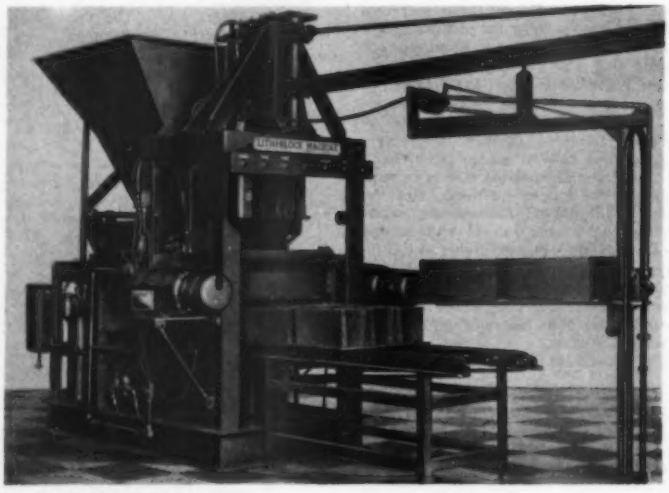
● Protective Tubing

A plastic protective tubing for prestressing cables in concrete is now on the market. The tubing is split along one side and has corrugations on each side of the opening so that they overlap and interlock when the tubing is closed.

"Aeroflex Split Plastic Tubing" is made in 10-ft. lengths and in sizes from ¾ to 1¾ in. in diameter. The advantages claimed for the tubing are: ease of application; resistance to injury by concrete or vibrators; inertness to concrete chemical reactions; durability; and no leakage of concrete into the tube.

In use the tubing is opened along the cut edge and slipped over the prestressing cables. Masking tape is applied along the edge of the overlapping sides and tape is run around the tubing every 1½ ft. or so. The tubing can be put on when convenient as it is unaffected by weather. When the cables are tensioned the plastic gives a smooth surface permitting them to move.

Aeroflex tubing was developed in cooperation with John A. Roebling's Sons Company, manufacturers of cable for



● Block Machine

A new model block machine the "'53 Mogul" with a capacity of 720 standard units per hour has been announced.

The new model uses plain pallets, and has a combination vibratory and tamping packing action. Operation is automatic, semi-automatic or manual. A "quick-change" mold box is featured, which can be changed in just fifteen minutes according to the manufacturer. Operation is electric and air-hydraulic with finger-tip control.

Other features include: king size hopper; totally enclosed motors with positive brakes; built-in pallet oiler; independently mounted vibrators; controlled stripper action; precision hardened steel stripper shoes; adjustable electric feed drawer timer; and feeder drawer shaker.

The '53 Mogul block machine is produced by the Lith-I-Bar Company, Holland, Mich.

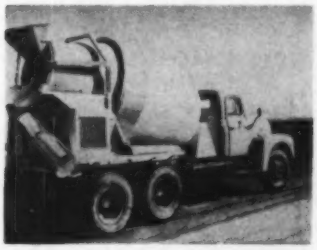
Our Identification No. 120.

prestressing, by Anchor Plastics Company, 36-36 36th Street, Long Island City 6, N. Y.
Our Identification No. 121.

• Concrete Mixer

A 6 to 7¼ cu. yd. concrete mixer suitable for mounting on ten-wheel trucks has been announced. The drum is powered by a 93 hp. Ford OHV Industrial 6 and Ford power transmission assembly. The engine is in the rear so the main weight of the concrete is thrown forward to equalize axle loads.

The frame is unusually strong and the drum is strengthened by two continu-

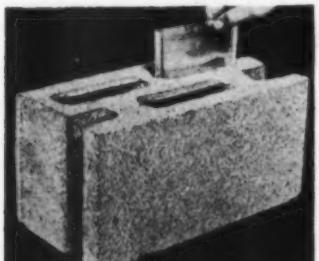


ously welded overlapping mixing spirals. Other features of the mixer include: large collecting areas in both charging and discharging hoppers; folding chute that extends 8½ ft. from the swivel; combined pedestal and water tank with 90 gal. capacity and outlets for mixing and washing; and a gear-type water pump driven from the mixer engine. The new mixer is manufactured by Willard Concrete Machinery Sales Co., 11700 Wright Road, Lynwood, Calif.
Our Identification No. 122.

• Insulated Block

A concrete block that has two parallel dead air spaces that are further augmented by an aluminum insulator inserted in them is being readied for the block industry.

The blocks are formed of lightweight or any convenient aggregate on special molds used on Besser block machines.



They weigh slightly more than conventional blocks of the same material. Aluminum foil insulators and caps are supplied by the inventor and are inserted in each row as the block is laid. The staggered arrangement of the air spaces provides a high degree of insulation while the reflective aluminum adds to this.

The new block was developed by the Thermoflector Corporation, North Sioux City, N. Dak.
Our Identification No. 123.

• Block Loader

A truck body especially designed for loading and unloading heavy loads such as concrete blocks has been placed on the market.

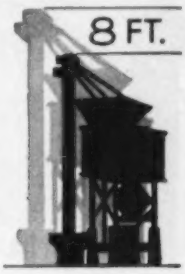
The body consists of a steel frame work supported over the truck bed. A traveling carriage runs on the frame and has cables and winch for handling the load. The entire unloader is powered by electric motors that are supplied current by a generating set driven by a self-starting two-cylinder air-cooled engine. The lifting capacity of the "Lectro-Lift" material handling truck body is 6000 lbs.

A smaller unit that consists of a swinging boom and block hoisting mechanism is also available. It has a capacity of 500 lbs. Both are produced by William Bros. Boiler and Manufacturing Company, Minneapolis 14, Minn.
Our Identification No. 124.

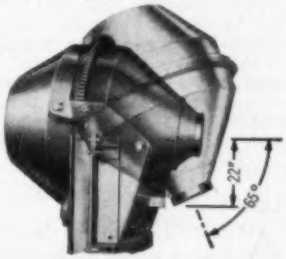
Burmeister

"TILT-UP" MIXER

CUTS PLANT HEIGHT AS MUCH AS 8 FEET



Burmeister's patented "tilt-up" feature—which reduces the mixer's headroom requirement—permits lower plant heights. This means easier crane loading, lower power costs, lower initial costs, less costly "conversions," increased portability, and better over-all control.



• In addition to reducing plant height, Burmeister's 3 cu. yd. "Tilt-Up" Mixer (left) provides a steeper 65° discharge from one spot, eliminates segregation of concrete and the danger of accidental discharge. It is simple to install, and has an integral hydraulic system—no compressor is required. Write for name of your nearest Burmeister Distributor, without obligation.

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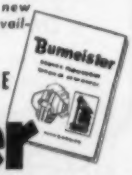

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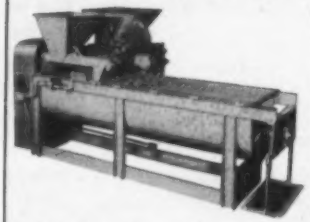

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Accurate proportioning through adjustable aggregate gates. Variable Speed drive for requirements ranging from 5 to 20 cu. yds. per hour. Cost only half that of batch mixer. More thorough mixing—gives up to 50% higher strength than 5-minute batch mix. Special advantages for lightweight aggregates. Illustrated literature and other information on request.

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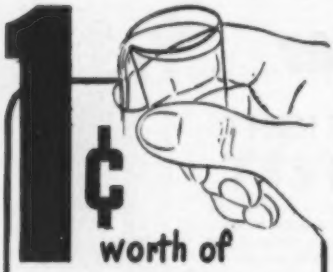

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Botched Batches

Quick, Watson, The Needle!

CONCRETE materials and their derivatives seem to be winding up in some strange places these days. In New York the other day an air shipment supposed to contain $2,300 worth of watches en route to Switzerland from Santiago, Chile, was found to contain nothing but rocks. Then at Salonika, Greece, not long ago they opened 97 crates that were supposed to contain $200,000 worth of clothing. The weight of the crates checked exactly with the bill of lading, but the contents consisted entirely of chunks of concrete.

That first item isn't too hard to explain. Somebody at Santiago probably decided that it wasn't any sillier to fly rocks into Switzerland than to send watches. The other one, however, has us on the ropes. Only possibility that occurs to us is that the shipper may have had some sad experiences with moths getting into previous shipments, and decided to get even with 'em this time.

Slings and Arrows

A COUPLE of bright lads on the staff of Cornell University's engineering faculty claim to have developed a method of making gravel out of mud, inexpensive chemicals and sulphite liquor. Seems this revoltin' brew is messed around in a briquetting machine and molded into pieces which look like over-sized dog biscuits. The latter are crushed and screened to produce the "gravel."

We suppose that some areas have a good deal more mud than gravel, but we weren't aware that the situation had grown quite as serious as the gentlemen from Cornell appear to believe. Of course, there is always a chance that their purpose was merely to provide a material with some sting in it for mud-slinging political campaigns.

Land Ho!

ACCORDING to the Lawrence *Dragon*, a man has been found who thinks 'tis a fine thing to have a cement mill in the neighborhood. Seems this Joe is a Penobscot Bay sailing enthusiast who finds the twin stacks of Lawrence's mill at Thomaston, Me., mighty handy for taking bearings. He claims that on a clear day the stacks are visible for 25 miles, and that the directional drift of the smoke ("vapor, that is," states the *Dragon* by way of clarification) tells him how the wind is and what he may expect in the immediate future. Wonder if it tells him where, how, and if he could latch onto a bag of cement right suddenly, if he should happen to want one?

Yummy!

THE clay brick people are really going all out in their efforts to recapture some of the markets taken over by the concrete block industry. One outfit, the Malvern Brick & Tile Co., of Malvern, Ark., is turning out its product in such beguiling colors as Valencia treebark, suntan, earth blend, and banana. We understand that for a nominal fee they will even split the last named item and sprinkle it with nuts.

Career

FELLOW down in Miami claims he's doing a land office business turning out precast concrete tombstones for pets. Current production is at the rate of 60 units per day, and orders are coming in from humane societies and pet cemeteries all over the country. To date he has made grave markers for dogs, cats, parrots, monkeys, and even skunks, and one of his products marks the final resting place of the late Gargantua, well known circus gorilla.

We're currently engaged in trying to get a similar venture launched up at Bar Harbor, Maine. Soon as we succeed, we're going to form a National You-Name-It-We've-Got-It Concrete Tombstone Association and get ourself elected executive secretary. We'll hold two meetings a year; one at Miami, lasting from November through April, the other at Bar Harbor for the remainder of the year. Sounds like an exhausting schedule, but we've lived a comparatively clean life and should be able to stand the gaff for 30 or 40 years.

You prefer champagne because it's a sparkling, tangy drink . . . fit for kings . . . universally accepted as tops in beverages. Ready-Mix Operators prefer Smith-Mobiles because they too are tops in their field . . . the finest and most dependable truck mixers that money can buy. So why be satisfied with ordinary truck-mixers when you can get these top quality Smith-Mobiles at relatively low cost? Contact your nearby Smith Distributor. Ask for new bulletin.

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T. L. SMITH CO. MILWAUKEE U.S.A.

CONCRETE MIXERS

For BIGGER and BETTER Concrete Mixers and Truck Mixers . . . LOOK TO SMITH

A 7326-1P

Plant and storage yard of National Brick and Supply Co., Inc., Washington, D. C.

• Lower costs
• Higher strengths in shorter curing time

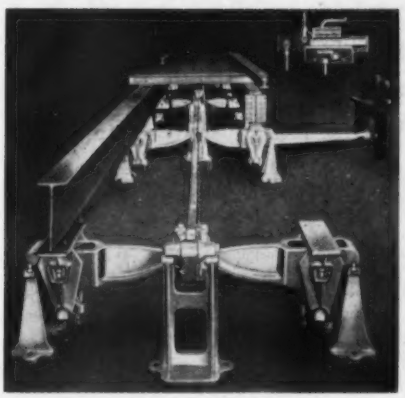
. . . . . these are advantages obtained by concrete products manufacturers who use LEHIGH EARLY STRENGTH AIR-ENTRAINING CEMENT. The experience of National Brick and Supply Co., Inc., is typical. They write, "Exhaustive tests at our plant have convincingly demonstrated its economy in the manufacture of cinder block." And they add, "We are able to handle our production at an earlier age with reduced breakage of the blocks."

It will pay you to make tests of LEHIGH EARLY STRENGTH AIR-ENTRAINING CEMENT in your plant and compare quality and costs with those you are getting now. Our Service Department will be glad to help you with your specific problems.

LEHIGH CEMENTS

LEHIGH PORTLAND CEMENT COMPANY ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

LEHIGH PORTLAND CEMENT • LEHIGH EARLY STRENGTH CEMENT • LEHIGH AIR-ENTRAINING CEMENTS • LEHIGH MORTAR CEMENT



TRACK SCALE

Railroad track scales. Capacities of 80 tons or 125 tons.

Cement Storage

These bins → shipped in one piece all welded

Plant of a contractor used for highway construction. Steel bins shown are 400 bbls. ea., and these are shipped completely assembled and welded, ready to lift up in one piece. Screw Conveyor arranged for re-circulation.

Plant of G. & W. H. Corson — Plymouth Meeting, Pa.

Concrete Plant Central Mix Type

- *Bin is eight (8) compartment*
- *Batcher and Mixer 2 cu. yd.*
- *Belt Conveyor is 24" x 240'*
- *Mixer carried on separate concrete piers*

Concrete Plants — either central mix or dry batch.
Cement storage bins and batchers, with elevators, etc.
Bins — Elevators — Screw Conveyors — Belt Conv. — Batchers — Scales
We design, fabricate complete plants under one contract.

Inquiries Invited

FANNING SCHUETT ENGINEERING CO.

Phila., Pa., 4325 N. 3rd Street **New York (7) N. Y., 220 Broadway**

20 new "plus" features

Perfecting the modern truck mixer that increases legal payloads without resorting to short-lived construction or unacceptable non-standard drums *

1. Super-fast discharge blade construction: Faster, cleaner discharge of low slump concrete than any other truck mixer.

2. One-piece drum track (without joint) forged of high carbon steel: New welding method insures troublefree long life under heaviest overloads.

3. "Protecto-Lube" pump clutch housing: Completely protects water pump clutch and provides tube for to-the-spot lubrication. Means longer life, less maintenance for clutches.

4. Positive "Detent-Lock" pump clutch lever: Combines positive lock with finger-tip control. Eliminates needless wear on clutch shift collars.

5. New waterproof electric system: Another Jaeger "first" that ends ignition system troubles and rundown batteries.

6. Improved water tank support: Rigid bridge truss brackets eliminate the sideway and cantilever action of overhanging tanks and withstand the maximum shock of quick truck stops.

7. Reinforced double drum heads and trunnion bosses: Greater strength to carry greatest payloads.

8. Maximum load designed trunnion support: Simplified all-welded construction, including welding to the main frame, gives massive strength. Absorbs the stresses of emergency stops made with full-loaded drums.

9. Shorter, sturdier engine mounting: Designed to provide easier, positive adjustment of intermediate drive chain.

10. Perfected "Comatic" hydraulically actuated transmission: This latest type Comatic eliminates all problems of shock-proof drum starting and reversal — a major 1953 improvement in truck mixers which only Jaeger offers.

11. Simplified, closer-coupled intermediate drum drive: Eliminates use of universal joints and any danger of deflection over the roughest ground, provides easy, positive alignment and adjustment of drum drive chain with new sure-locking positioning studs.

12. New "Safety-First" ladder and platform: Another Jaeger "first" that gives both easier and safer access to water tank filler caps.

13. Vibration-free chain guards with positive sight-feed oilers.

14. "Z" bar main frames on all models: Model 3HMD now has same extra rigid, rolled "Z" bar frame construction as larger models.

15. Wider cat-walk and fender combinations: Cover full tire width. Reinforced edge absorbs vibration on roughest roads.

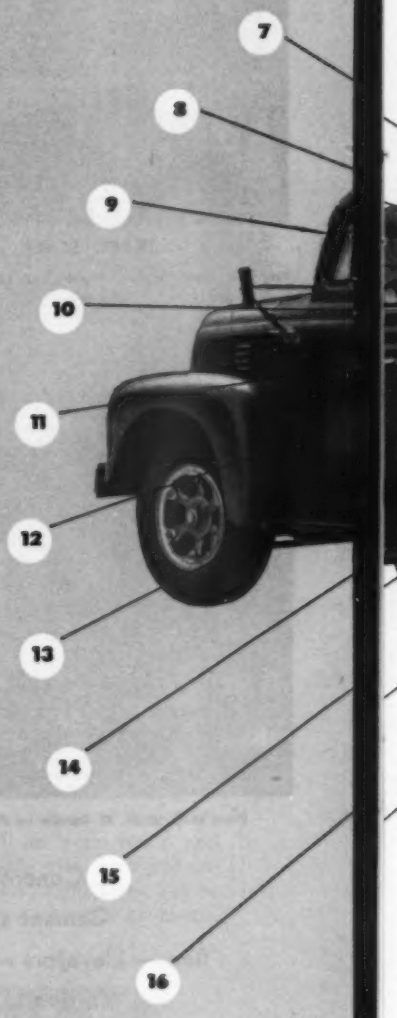
16. New, extra-wide rear ladder: For safer inspection and cleaning of end-loader assemblies.

17. Operator-designed front and rear controls: Simplest, most troublefree controls offered today. One-piece rods connect front and rear controls, eliminating flexible cables.

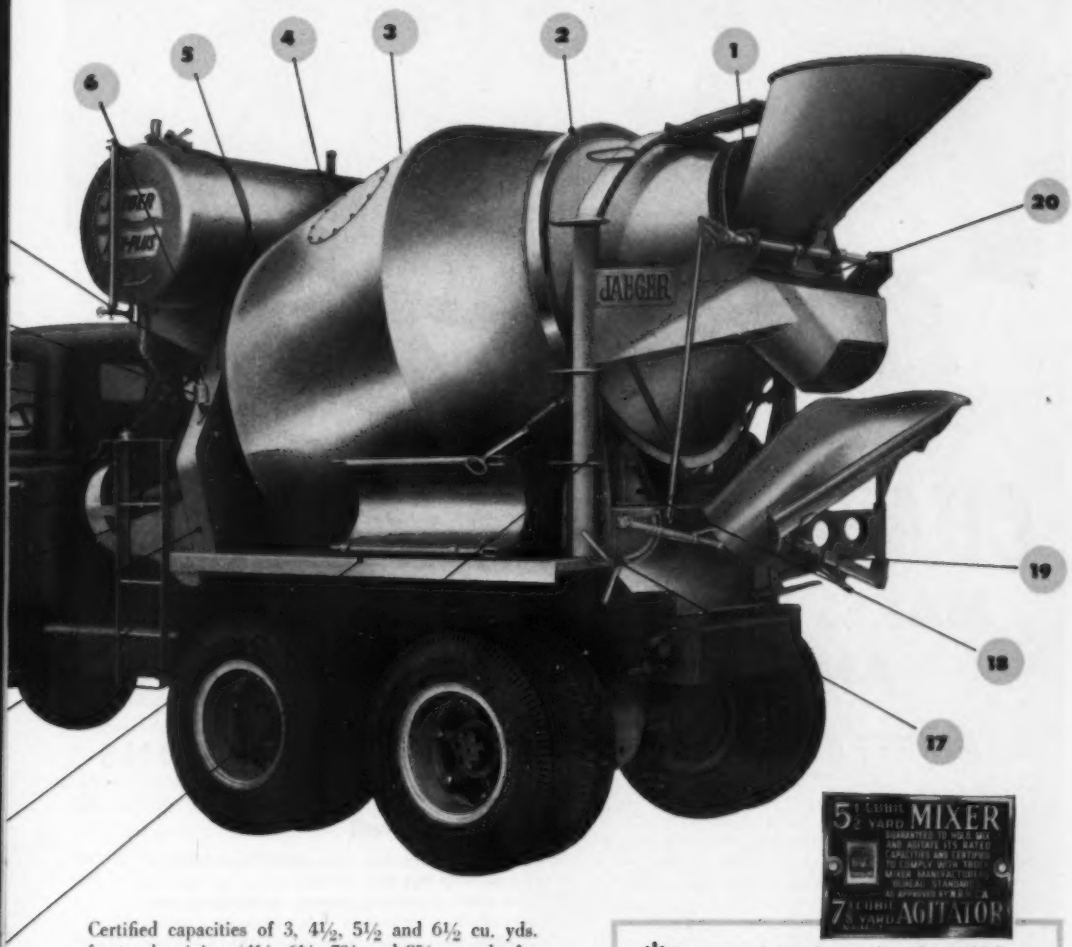
18. Improved drum roller cradle: Unit weld construction gives greater rigidity; auxiliary bracing overcomes problem of weak truck frames. Insures perfect drum roller alignment.

19. Positive, heavy duty chute support: Cast steel ratchet-type adjusting device gives quick, positive setting of chute position; handles full loads of low slump concrete under all discharge conditions.

20. New "Back-Away" gate in open end loader: Closes lower half of drum opening to prevent cement blow-back and water spillage when charging, and loss of concrete when climbing steep grades. Instantly backs away, parallel to drum opening, for unimpeded discharge of low slump concrete.



. . . engineered by JAEGER



Certified capacities of 3, 4½, 5½ and 6½ cu. yds. for truck mixing (4¼, 6⅛, 7⅜ and 8⅝ cu. yds. for agitating) enable you to meet your local condition, weight limitation, payload requirement and wet-mix or dry-batch operation with acceptable standard units, readily mountable on standard makes of trucks.

Your investment in Jaeger truck mixers involves no risk of obsolescence, and equips you for 8 to 10 years of profitable production under normal service conditions. For full information and prices, see your Jaeger distributor, or send for Catalog TMH-3.

*** Because an increasing number of state highway departments, other public authorities and supervising architects and engineers now ban the use of non-standard truck mixers on their work, it is important to emphasize that Jaeger MIX-PLUS truck mixers and agitators are *guaranteed by Bureau rating plate* to meet industry standards for proper drum capacity, design and mixing speed, and accuracy of water control to meet rigid specifications.**

THE JAEGER MACHINE COMPANY

602 Dublin Avenue, Columbus 16, Ohio

***World's Largest Builder of Truck Mixers, Agitators* • Pumps • Compressors • Concrete Mixers • Paving Machinery**

CHASE POWER-DRIVEN TURNTABLE MAKES LOADING, UNLOADING AND CUBING EASIER...

DIAMETERS TO 8'...CAPACITY TO 10 TONS

This new equipment eliminates wrestling with your block racks, blocks and pallets. Press a button and the rack is turned for loading, unloading or cubing. CHASE Power-Driven turntables have remote, push-button controls for forward, stop or reverse. You get greater efficiency and speeded-up production, which soon pay for the turntable.

CHASE Turntables have totally-enclosed gear reduction unit, anti-friction bearings throughout, self-aligning, positive mesh gear drive and easily accessible lubrication fittings. These mean long life, easy maintenance for the CHASE Turntable.

Easy to install

CHASE Turntables have a solid steel band circling the table and flush with the floor — no need for forms when concrete is poured. Power-driven turntables require a pit only 15" deep. Manually operated turntables, shown below, need only a 4½" pit depth.

Write now for prices, specification sheets and further information.

CHASE FOUNDRY & MANUFACTURING CO.

2400 PARSONS AVENUE • COLUMBUS 7, OHIO

This "Flying Saucer" carries Truth!

Crusade for Freedom brings hope to enslaved millions

The word "SVOBODA" on the balloon in this picture is the Czech word for "Freedom."

Supplementing Radio Free Europe in 1951, thousands of these "Flying Saucer" balloons were released by Crusade for Freedom along the borders of the Iron Curtain countries. They contained messages of hope and courage from millions of Americans who joined in the 1951 Crusade for Freedom.

LOOK WHAT YOU DID

In the last two years the contributions of Americans to the Crusade for Freedom have amounted to $3,500,000. This money helped make possible Radio Free Europe's thirteen transmitters in Germany and Portugal. It also helped establish Radio Free Asia, which broadcasts to China in four different languages. These facilities are used daily to spike Communist lies and satisfy the hunger of millions for truth.

MORE HELP NEEDED!

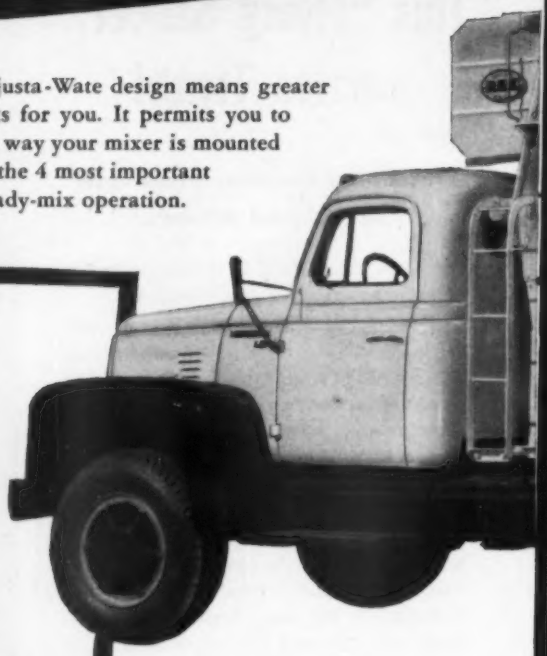
In 1952, at least $4,000,000 and the signatures of millions more Americans on leaflets ("Freedom-Grams") are needed—not only to carry on this operation but also to expand it on an even bigger scale.

Support this crusade of truth now.

Help Truth Fight Communism! Join the Crusade for Freedom

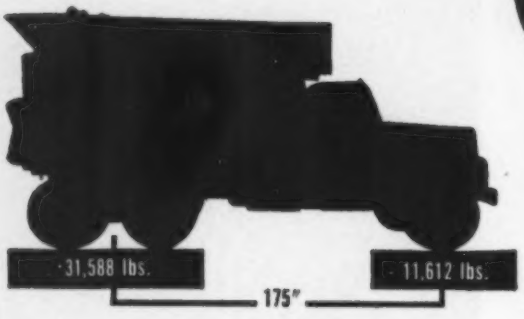
It's mounted RIGHT for largest

Here's why the exclusive Rex Adjusta-Wate design means greater legal payloads and bigger profits for you. It permits you to mount your mixer *right*...and the way your mixer is mounted on the truck body directly affects the 4 most important factors in economical, efficient ready-mix operation.



TYPICAL ADJUSTA-WATE MOUNTING DEMONSTRATING THE IDEAL WEIGHT DISTRIBUTION AND MAXIMUM LEGAL PAYLOAD

A typical mounting of a Rex 5½-Yd. Moto-Mixer, taken from our files, on a truck of customer's choice, demonstrating the ideal weight distribution and maximum legal payload made possible by the exclusive Rex Adjusta-Wate design.



Weight of Truck	12,100 lbs.	*Distribution of Weight:*	
Weight of Mixer	7,884 lbs.	Front Axle:	11,612 lbs.
Weight of 80 gallons of water	666 lbs.	Rear Axle:	31,588 lbs.
Weight of 5½ yards of concrete	22,550 lbs.	Wheelbase	175"
Gross Vehicle Wt.	43,200 lbs.	Discharge point behind rear tires	15⅜"

1. Wheelbase

Rex Adjusta-Wate design permits the shortest possible wheelbase commensurate with load to be carried. Means greater maneuverability, easier operation.

Rex Adjusta-Wate Moto-Mixers are available in 3-yard, 4½-yard, 5½-yard and 7-yard sizes. Rex Horizontal and Adjusta-Hite machines are available in 4½ and 5½-yard sizes.

A Complete Line of Truck Mixers to Meet Your Every Requirement

legal payloads

2. Load Center of Gravity

Rex Adjusta-Wate design places center of gravity well ahead of rear axle... assures a properly balanced load.

3. Clearance of Rear Wheel

Rex Adjusta-Wate design assures ample clearance of rear wheels for maximum discharge spouting range.

4. Load Distribution on Truck

Rex Adjusta-Wate design permits best possible weight distribution for full utilization of legal gross vehicle weight.

Remember, the Rex Adjusta-Wate Moto-Mixer...*the first rear engine mounted truck mixer in the industry*...has been in standard production for 2 years...It is still the only mixer that gains *full advantage* of rear engine mounting for larger legal payloads. Ask your local Rex distributor to demonstrate all the advantages of the Adjusta-Wate design to you. Chain Belt Company, 4782 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT REX COMPANY

CONSTRUCTION MACHINERY

MOTO-MIXERS MIXERS PUMPS PUMPCRETES PAVERS

Concrete Manufacturer Classified Section

431 S. DEARBORN ST., CHICAGO 5, ILL.

Advertising Rate Per Issue: $10.00 a Column Inch. Lower Rates on a Contract Basis — Write for Rate Card.

PRICED TO SELL
TWO COMPLETE CONCRETE PLANTS

Plant 1.

Consists of:	Date Purchased
1—Air compressor (Elec. Motor) for Cement Bin	6/11/52
1—100 Ton—Blawknox—3 Comp. Aggregate Bin—5 yd. Hopper and Scales	2/28/51
1—400 Bbl. Blawknox Cement Bin 1 Comp. with screw, elevator & 5 yd. Hopper and scales	2/28/51
1—400 Bbl. Aux. Cement Bin—Blawknox	7/11/52
1—Butler Hopper 15" x 15" Gate	6/15/52
1—Water Meter—2" Neptune—Model 240	4/30/50
1—Butler No. 7 Track Plant with Screw, Elevator and Gas Motor	8/13/52
1—Littleford Steam Generator Plant—Model 1000E with electric Motor	1/17/52
2—Acme Hot Water System with 1" Elec. Pump	1/31/50
1—Belt Conveyor with new, never used, extra motor	

Plant located at Blue Ridge Summit, Pennsylvania. Placed in operation (Brand new) on July 10, 1952, and has handled less than 30,000 cu. yds. of concrete.

Plant 2.

Consists of:	Date Purchased
1—100 Ton—3 Compartment Aggregate Bin—Johnson, with 2 yd. Hopper & Scales	11/22/49
1—300 Bbl. 1 Compartment Cement Bin, Blawknox	10/26/49
1—Bin Indicator for Cement Bin—Blawknox	3/31/50
1—Butler Cement Elevator—10" Screw—7½ H.P. Motor	12/23/49
1—Butler Cement Screw Extension 10" x 10'	3/23/50
1—Bucket Conveyor—100 Ton per hour, with 15 H.P. Electric Motor, never used	6/20/52
1—Front End Loader—¾ yd. Sheppard & Set Teeth	6/2/52
1—Butler No. 7 Track Plant, with screw, elevator and Gas Motor, never used	9/25/52
1—Butler Screw Extension 10" x 10'	9/25/52
1—1 yd. Concrete Mixer with Elec. Motor	

Plant may be seen in our yard here in Washington, D.C. Kindly note that while aggregate Bin, Cement Bin and Elevator have been in operation, the balance of equipment is entirely new and never used.

HOWAT CONCRETE COMPANY, INC.
South Capital at S Street — Washington 4, D.C.
Phone: Lincoln 6-5522

8" and 12"
TROUGH BELT CONVEYORS
Sand • Gravel • Redi-Mix
Basement Excavating
18' - 24' - 30'
$444 to $770
Gas or Electric Drive
Send for Literature
New London Engineering Co
NEW LONDON • WISCONSIN

MIXER BARGAINS

JAEGER, 1941, 2 yd. Horiz. Ser. #J6120. Mounted on 1947 Intl. KBS-7 ..... $1350

JAEGER, 1941, 3 yd. Hi-Disch. Ser. #J5183 ..... $800

SMITH, 1941, 1½ yd. Hi-Disch. Model 408, Ser. #51123. Mounted on 1946 Intl. K-6 ..... $1200

Above Units in Good Operating Condition. Replacing with Larger Units.

W. G. BLOCK CO.
Davenport, Iowa

READY MIX PLANT

A complete ready mix concrete plant operating as a going business located in an industrial city of 85,000 population. Only two plants in operation in this city. This business offered for sale complete with all equipment including 7 concrete mixer trucks, aggregates and cement bins and all relative equipment. Inventories over $100,000.

Champion Realty Co.
303 Raleigh Bldg. — Raleigh, N. C.

FOR SALE

Complete Brikcrete Plant
Makes Block 3⅝"x12"
4" and 8" attachments
Over day's run of steel pallets
6 racks and jack
Mixer and machine like new.
$3,000.00 F.O.B.

SMILEY BLOCK CO. — LYNCHBURG, VA.

STOP that WATER

With FORMULA NO. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: Applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

FOR SALE

about 2200 plain steel pallets. Size 12⅛" x 15⅛".

RUPPE CEMENT PRODUCTS
Ironwood, Michigan

FOR SALE

1—Used Besser, three block Vibrapac, with MM Speed up installed on machine; 8" attachment. Machine in very good condition and can be seen in operation.

BOX NO. EN-62, c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St., Chicago 5, Illinois

FOR SALE

Stearns Stripper Clipper Model A block machine, 4, 8, and 12 in., mould boxes
600 12 in. pallets — 1600 8 in. pallets
12 cu. ft. skip hoist
25 steel racks
Must sell to make room for larger machine

FRANK SKUPIEN
327 Main Street — Gallitzin, Pa.

CEMENT COLORS

Write for free samples and prices of "LANSCO" CEMENT COLORS produced in 34 attractive shades. Packed in bulk and in 1 lb. and 5 lb. packages.

manufactured by
LANDERS-SEGAL COLOR CO.
71 Delevan St. — Brooklyn 31, N. Y.

FOR SALE

Kent Lintilator—Makes 4" - 8" - 6" lintels up to 9'6" long. Bought new June of 1952. Cost $1650.00, will sell for $800.00. 50 pallets 8" channel 9'6" long 5c per lb. One Stearns 12 ft. mixer. 1 D H motor and parts $300.00. One Besser air hoist $200.

DR. L. DUNLAP
Military Road — Zanesville, Ohio

WANTED

A large established New Jersey Concrete Concern has an opportunity for a concrete Engineer or Technician who is thoroughly experienced with ready mixed concrete.

Box No. DM-50 c/o CONCRETE MANUFACTURER
431 S. Dearborn St. — Chicago 5, Ill.

BUILD GOOD WILL

Advertising necessities for the block industry. Line Pins, Twigs, Modular Coursing Stick. Also the new Block Calculator and Wood Corner Block. All imprinted with your advertising. Complete catalog on request.

GERSON CO.
97 Dearing Road — Methuen, Mass.

BLOCK PLANT FOR SALE

Established 5 years, good market, Kent auto. blockmaker; Cont. mixer, feeder & elevators, overhead bins, etc. Will finance ⅓ plant & real estate to reliable party or will sell equipment piece meal.

E. I. KOONS
Ashland, Ohio — Phone 25901

FOR SALE

Pallets—1200 ¼ x 18 x 12¼ flat steel @ 50c—1800 ¼ x 18 x 8¼ @ 30c—40 60 Block shelf type racks @ $10.00—2 Barrett hand lift trucks @ $100.00—1 Flemming 100 Vibrator Block Machine, hardly used, $500.00—1 F.M.C. 24 cu. ft. Plant Mixer $1200.00—1 Bucket elevator, 20 ft., with motor, $400.00—1 Material elevator with hoppers, $250.00.

Will sell complete for cash at 15% discount.

EVART MILLER

316 Goodsell Street Evansville, Indiana

MAQUINARIA y MOLDES

para fabricación de bloques y tubos de concreto

PIDA CATALOGO Y PRESUPUESTOS

GEORGE W. HOFFMANN CO.

P. O. Box 402, Sioux City, Iowa, U.S.A.

LOWER COST

PACKER-HEAD WINGS

Proved to last as long, or longer—yet cost considerably less. Write for prices.

TEXAS FOUNDRIES
LUFKIN, TEXAS

CEMENT COLORS

All shades and grades the highest quality.

Write for color cards, prices and samples

RICKETSON MINERAL COLOR WORKS
MILWAUKEE 2, WISCONSIN
Established 1885

FOR SALE

Two No. 9 Stearns Jolterete—complete with electrical control. Power carriage and 4, 6, 8, 12 and 18 in. floor filler attachments. Also includes 20,000 pallets. One Stearns Clipper Stripper & pallets in very good condition. Priced for quick sale.

W. K. BRYANT STRASBURG, VIRGINIA

FOR SALE

2000—Used ¼x12¼x18½" Plain Steel Pallets; 700—New, not used, 3/16x13x18½" Plain Steel Pallets;
Dismantled Besser K-3, parts for sale;
Good used BE 10-B Crawler, with shovel, dragline, clam and dragline;
Located North Central States.

BOX EN-63,
c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Ill.

FOR SALE

1 Kent 21 Flomaster Continous Mixer—Good Condition—Used only six months—
Also one 15 H.P. 3 phase motor
one 5 H.P. 3 phase motor
one 3 H.P. 3 phase motor
No reasonable offer refused.

HARVEY B. SCHOONMAKER
12 Fletcher St. Goshen, N.Y.

MODERN BLOCK PLANT FOR SALE

The plant includes the following:

3 acres of land

4 new Model 8 automatic Columbia Block Machines

2 new 50 cubic feet mixers

2—2 skip loaders

2—85 cubic yard aggregate bins

1 Butler self-propelled-traveling way batcher, feeding both mixers

4 steam rooms—17 feet wide by 80 feet long—flexicore roof and Universal doors.

2 Hyster lift trucks, model 40

1—37½ H.P. Francis Steam Generator

2—2 ton G.M.C. trucks—1951 & 1952 models

1—t ton G.M.C. pick-up truck—1951 model

195 block racks—Capacity 144 blocks per rack

1 warehouse, 18 feet by 90 feet.

Modern office

Capacity of plant—20,000 to 30,000 blocks per day

Gross sales—approximately $400,000 per year

Reasons for selling—Manager disabled to a point where he cannot take care of business and owner is overseas in military service.

This plant is located in the fastest growing city in the U.S.A. Anyone is invited to spend a week at this plant to observe the operations.

Without newspaper advertising or salesmen, this plant has sold over 12 million blocks in three years.

COLUMBIA BLOCK CO.
445 E. Jacinto St.
Tucson, Arizona

PRICED TO SELL

Nine Concrete Truck Mixers completely reconditioned and in excellent operation.

#28, one 1944 Brockway truck, Model 152W mounted with 4 c.y. Rex horizontal mixer.

#38, one 1942 Brockway truck, Model 152W mounted with 4 c.y. Rex horizontal mixer.

#31 - #32 - #34, three 1940 Brockway trucks, Model TM Spec. each mounted with 4 c.y. Rex horizontal mixers.

#4 - #6 - #12 - #16, four Brockway trucks, Model T.M. Spec. each mounted with a 3½ cu. yd. Rex horizontal mixer.

All equipment is currently in operation and can be seen at our plant.

HOWAT CONCRETE COMPANY, INC.
South Capitol at S Street
Washington 4, D. C.
Phone: Lincoln 6-5522

CONCRETE BLOCK PLANT

Located in Durham, N. C. Currently operating as a going business. Inventories over $50,000. Complete with all equipment & real estate for only $35,000.

Champion Realty Co.
303 Raleigh Bldg. Raleigh, N. C.

FOR SALE

GOCORP "JUNIOR"—Best single block machine on the market. 14 months old. Guaranteed excellent condition. Available approximately the first of April.—2500 8" pressed steel pallets—hand lift truck and racks.

HEARNE CONCRETE BLOCK CO.
1029 Center St. Catlettsburg, Ky.

USED EQUIPMENT

LS-51 ½ yd. Link-Belt Speeder. Less than 1 year old, Waukesha Gasoline engine $12,000.00

YC-9 Crane, with 20' Telescopic Boom, Buda Gasoline engine. New solid rubber tired wheels. Excellent condition. $4,750.00

½ yd. Hanson Crane, with GMC Diesel engine, 30' Boom 5 years old, completely overhauled $6,000.00

Jaeger Fleetfoot Crane, 18' Telescopic Boom, Chrysler engine, new solid rubber wheels, reconditioned and repainted $3,750.00

LS-40 Link-Belt Speeder Backhoe, ¼ yd. Bucket, Gasoline engine. Excellent condition $4,500.00

½ yd. Shield-Bantam, mounted on GI GMC, completely reconditioned and painted $5,750.00

2-HCS Jaeger 2 Yd. Hi-Dump End Loader, mounted on 1947 Dodge Truck $1,500.00

2-Hm Jaeger 2 Yd. Hi-Dump End Loader, mounted on GI 6 x 6 GM Tandem $2,500.00

2-HS Ransom 2 Yd. Hi-Dump End Loader, mounted on 1945 Mac $2,250.00

2-HC Jaeger Hi-Dump with new End Loader, on 1941 White..... $2,500.00

Parsons Ditcher, loader type, powered by Waukesha Gasoline engine. 24" Bucket, 14½' Max. depth. Good running condition $4,500.00

Chicago Pneumatic 315 cu. ft. Air Compressor, 1 year old, mounted on 4 rubber tired wheels. Gasoline engine $5,500.00

Nelson Loader, P11, powered by Le-Roi Gasoline engine. Mounted on 6 Rubber Tires. Used 5 months. New guarantee $6,000.00

FLACK EQUIPMENT COMPANY
1240 McCook Ave. Dayton 1, Ohio

PRICED TO SELL:

Good Condition

FORD BLOCK MACHINE
FORD 1 BAG MIXER
FORD ELEVATOR
1500 REGULAR PALLETS
300 SPECIAL PALLETS
PALLET RACKS
16x16—CHIMNEY BLOCK MACHINE
16x20—CHIMNEY BLOCK MACHINE
BESSER 1 BAG MIXER
SMALL BRICK MACHINE

Above Block Equipment and all motors at sacrifice.

Complete equipment for small Block Plant $2000 CASH

HAUGER MASONRY & SUPPLY CO.
P. O. Box 421 STERLING, ILLINOIS

UNBREAKABLE

PALLET RINGS

Write for full information

TEXAS FOUNDRIES
LUFKIN, TEXAS

MINERAL COLORS

for

BRICK MORTAR STUCCO-PLASTER-CONCRETE

"Fine Because of Their Fineness"
Ask for samples and recommendations.
BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

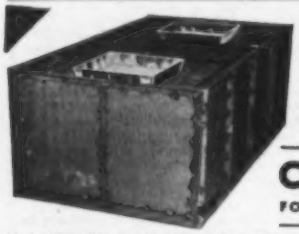
$ FOR $ THE BEST BUY IN THE BLOCK INDUSTRY

ELECTRO-VISOR

- AUTOMATIC FEED CONTROL..... UNIFORM QUALITY OF PRODUCT
- AUTOMATIC MAINTENANCE..... ELIMINATES THE HUMAN ELEMENT IN MANUFACTURE OF CONCRETE BLOCK
- 960-1200 BLOCKS PER HOUR..... GREATER VOLUME & BIGGER PROFITS FROM YOUR VIBRAPAC BLOCK MACHINE

WRITE • WIRE • PHONE

M&M ENGINEERING CORP.
1017 W. 23rd Street
Indianapolis 23, Indiana
Phones: Imperial 5496 - 5497

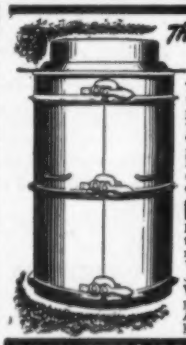


HIGHER Profits for CONCRETE PRODUCERS!

CARPENTER
FORMS AND EQUIPMENT

Make Quality Septic Tanks the modern, fast, profitable way—with CARPENTER Equipment. One man using our delivery rig loads, transports, and sets tank in hole. Satisfied customers from coast to coast.

CARPENTER MANUFACTURING CO.
Phone 28938—R.F.D. No. 1—Box 470, Richmond, Virginia



The "Quinn Standard" FOR CONCRETE PIPE

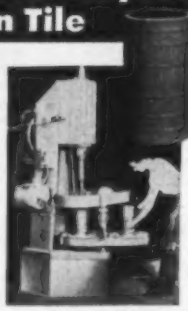
The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost. **WRITE TODAY.** Complete information, prices, and estimates sent on request. Also manufacturers QUINN CONCRETE PIPE MACHINES.

QUINN WIRE & IRON WORKS 1627 12TH ST. BOONE, IOWA

Make Money with *Champion* Cement Drain Tile



More millions of drain tile are needed to supply ever growing demand. The market is broad and profits are big.

The Champion makes the world's best drain tile. Densely compacted . . . ribbed for extra strength . . . every one truly concentric.

Champion machine is simple, compact and really rugged. Automatic feeder (optional) makes for 1-man operation. Write for literature — gives facts about the business and the equipment.

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- medium-high carbon steel side bars
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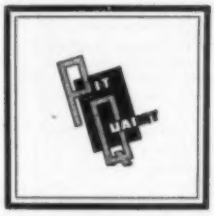

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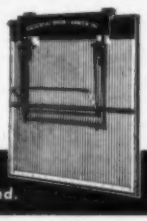

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Shown here is one of several types of "BRANFORD" portable Concrete Form Vibrators, available in a wide range of sizes. Other types for permanent vibrator installations can be supplied. One of the valuable features of "BRANFORD" Vibrating Equipment for concrete work is its VARIABLE SPEED. Low air consumption, high foot-pound impact and instant starting are other desirable qualities.

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New Haven VIBRATOR COMPANY
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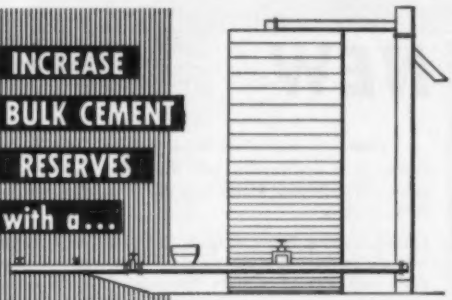
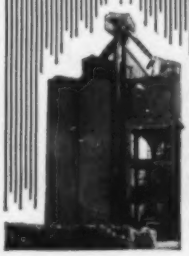


MARIETTA storage system



With a large capacity MARIETTA storage system, with its multiple silos, you can stockpile bulk cement reserves, avoid shortages and keep your production high. As the sketch shows, MARIETTA concrete stave silos can be used with pneumatic conveyors, or any type of materials handling equipment. These sturdy, fire-resistant tanks give you large capacity, low cost handling, keep your bulk cement in an "always ready-to-use" condition. Write for details on new methods for storing, handling bulk cement.

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That's because every OSWALT subscriber gets peak production and sound blocks . . . fewer culls mean larger profits.

NEW

. . . OSWALT Shock-Free Block Ejector and Front Pallet Feeder is a combination unit that insures smooth, gentle motion in delivering blocks from mold to pallet, eliminating green cracking.

Correct, uniform height of blocks is maintained by automatic controls on the vibrating motors. Adjustment of a special timer holds density constant. Signal system enables operator to govern feed so as to compensate for variations in mix.

With complete OSWALT Service, you now can get up to 1080 or more blocks per hour without sacrifice of quality.

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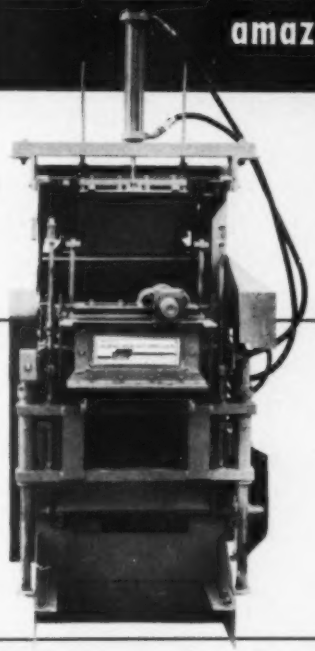
Here's why *you* will make *more money* with the amazing—

FLEMING
FMC-180
automatic concrete block machine



- peak production
- low operating costs
- low maintenance
- lowest purchase price

FAST, DEPENDABLE PRODUCTION. With Fleming, you get blocks with sharp edges, smooth surfaces, unsurpassed in strength. And it's fast and *dependable*—FMC-180 normally produces 180 blocks per hour. However, with simple adjustment, production of more than 200 blocks per hour can be attained. Testimonials from many FMC-180 owners show production up to 225 standard stretcher blocks per hour!

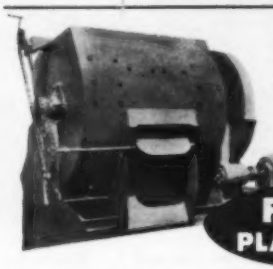
LOW OPERATING COSTS. FMC-180 reduces your operating costs, requires only *one* operator. The simple mold box change saves man hours. Uses a *plain* pallet. It's now available with pressure head, recommended for operation with light-weight aggregate.*

LOW MAINTENANCE. Sealed-in vibration, trouble-free hydraulic power plant and precision engineering throughout assure low maintenance costs. Producers report months of continuous service, with only routine maintenance checks.

LOWEST PURCHASE PRICE! Only Fleming can offer a machine so well engineered at so low a cost. Because Fleming is the *only* major manufacturer of concrete block making equipment that sells *direct to you*. Fleming by-passes the distributors and dealers, passing their profits on to you in the form of extra savings. Fleming can afford the extra manufacturing effort it takes to produce a *superior, fully automatic* block machine, available to you for at least a thousand dollars *less* than any other comparable machine on the market today.

Without cost or obligation, Fleming offers you complete block plant layout service. Send coupon *now!*

**Optional at slight additional cost.*



For even more profit per block switch to the

FMC-24 PLANT MIXER

Here's the outstanding value in the block equipment field—an FMC-24, convertible from two-sack to three-sack performance by only a change of motor! Guaranteed 100 per cent.

Mail this coupon today!

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Complete Concrete Block Plant Equipment

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Please rush information with illustrated price lists on the following to me immediately:

☐ A COMPLETE PLANT LAYOUT

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☐ FMC-12 Mixer (1 sack)
☐ FMC-36 Mixer (4 sack)
☐ FMC-400 Automatic Double Block Machine
☐ FMC-24 Mixer (2 & 3 sacks)
☐ Material Hoppers
☐ Skip Hoists
☐ Racks
☐ Elevators
☐ Lift Trucks

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Address .....

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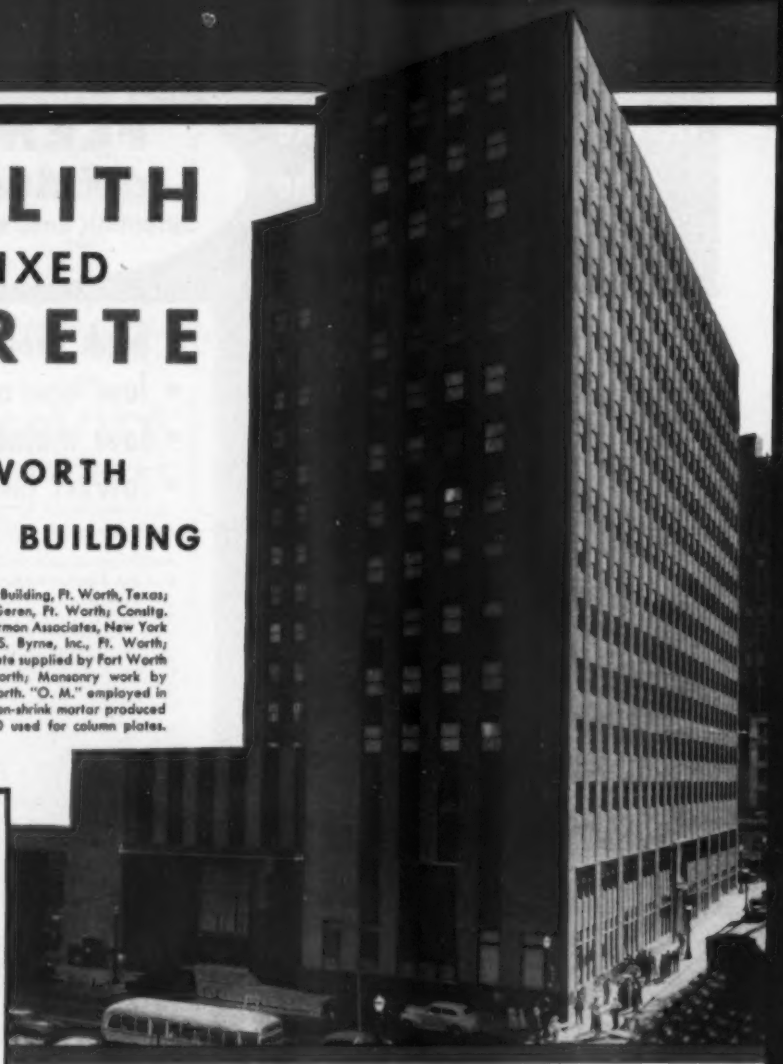
READY-MIXED
CONCRETE
IN
THE FORT WORTH
NATIONAL BANK BUILDING



The Fort Worth National Bank Building, Ft. Worth, Texas; Archt. & Engr.—Preston M. Geren, Ft. Worth; Consltg. Archt.—Shreve, Lamb and Harmon Associates, New York City; Gen'l Contr.—Thomas S. Byrne, Inc., Ft. Worth; Pozzolith Ready-Mixed Concrete supplied by Fort Worth Sand & Gravel Co., Ft. Worth; Masonry work by Barbour Mansonry Co., Ft. Worth. "O. M." employed in mortar. (See panel below). Non-shrink mortar produced with Master Builders EMBECO used for column plates.

CEMENT DISPERSION ALSO KEY TO SUPERIORITY OF COLORCRON— ANOTHER MASTER BUILDERS PRODUCT

COLORCRON...

A pre-mixed, ready-to-use dust-on material for coloring and hardening concrete floors or pavements. Provides beauty and long wear for light traffic areas in and around homes, churches, apartment houses and offices. Available in a wide range of colors.

Pozzolith Ready-Mixed Concrete is *better quality concrete* . . . that is the reason for its wide use in such noteworthy structures as this modern bank building.

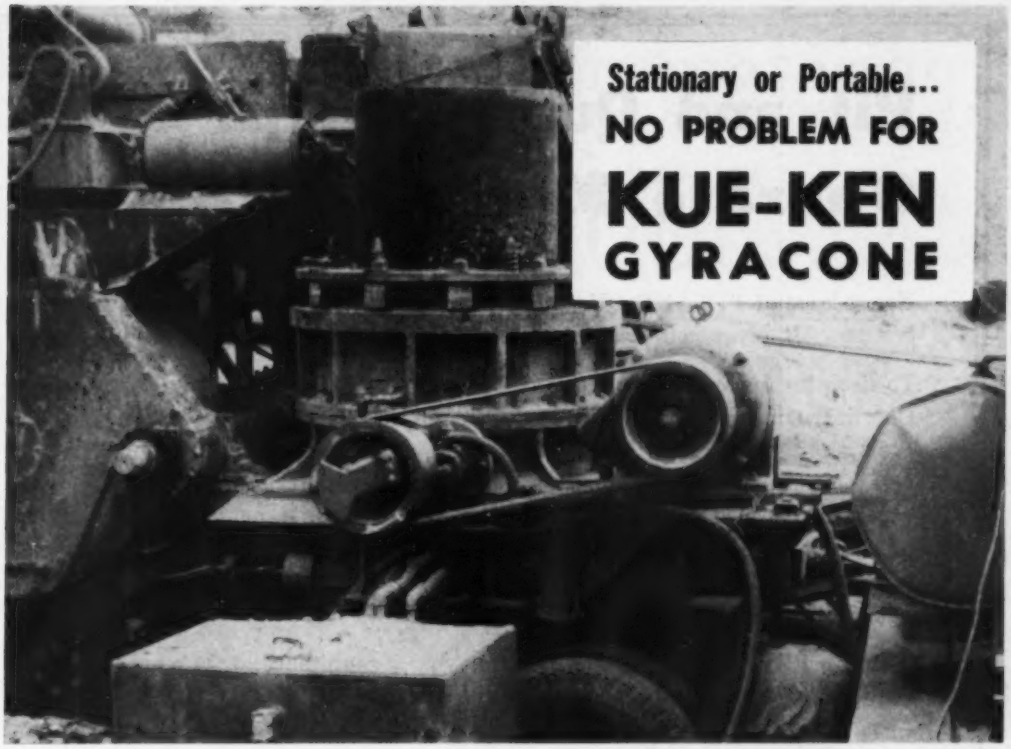
Among the improved qualities obtained with Pozzolith Concrete are the following:

- GREATER DURABILITY — for longer life concrete
- REDUCED SHRINKAGE — for less cracking
- LOWER PERMEABILITY — for less "waterproofing" expense
- MINIMIZED SEGREGATION — for better appearance
- INCREASED BOND-TO-STEEL — for better construction
- EASIER PLACEABILITY — for lower placing costs

Pozzolith reduces unit water content and conforms with the water-cement ratio law — basis of ACI and ASTM procedures of design, specification and production of quality concrete. ***Full information on request.***

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO — Subsidiary of American-Marietta Company — TORONTO, ONTARIO



Stationary or Portable... NO PROBLEM FOR KUE-KEN GYRACONE

Whether your crushing plant is stationary or portable, you'll find there's no problem about fitting a KUE-KEN Gyracone into the flow sheet. For example, using a portable roll crushing and screening plant, an Idaho contractor recently had trouble crushing basalt to ¾" in the required quantities of 100 to 125 tons per hour. Due to the toughness of the rock this capacity could not be met without causing excessive wear on the rolls. The obvious solution was to install a secondary crusher, but a difficulty arose in the fact that ordinary gyratories required too much headroom. A 36" KUE-KEN GYRACONE, requiring the lowest headroom of any gyratory available solved the problem. The KUE-KEN fit easily into his flow sheet, enabling the required capacity to be met, and eliminating excessive wear on the rolls. This report is only one of many that we are constantly receiving, proving time and again KUE-KEN's ability to solve a tough problem in the field.

No matter how tough your own crushing problem, the chances are that our engineering department will be able to help you solve it. It will pay you to investigate today.

See your dealer or write for factual illustrated data.

KUE-KEN pronounced "QUE-KEN"
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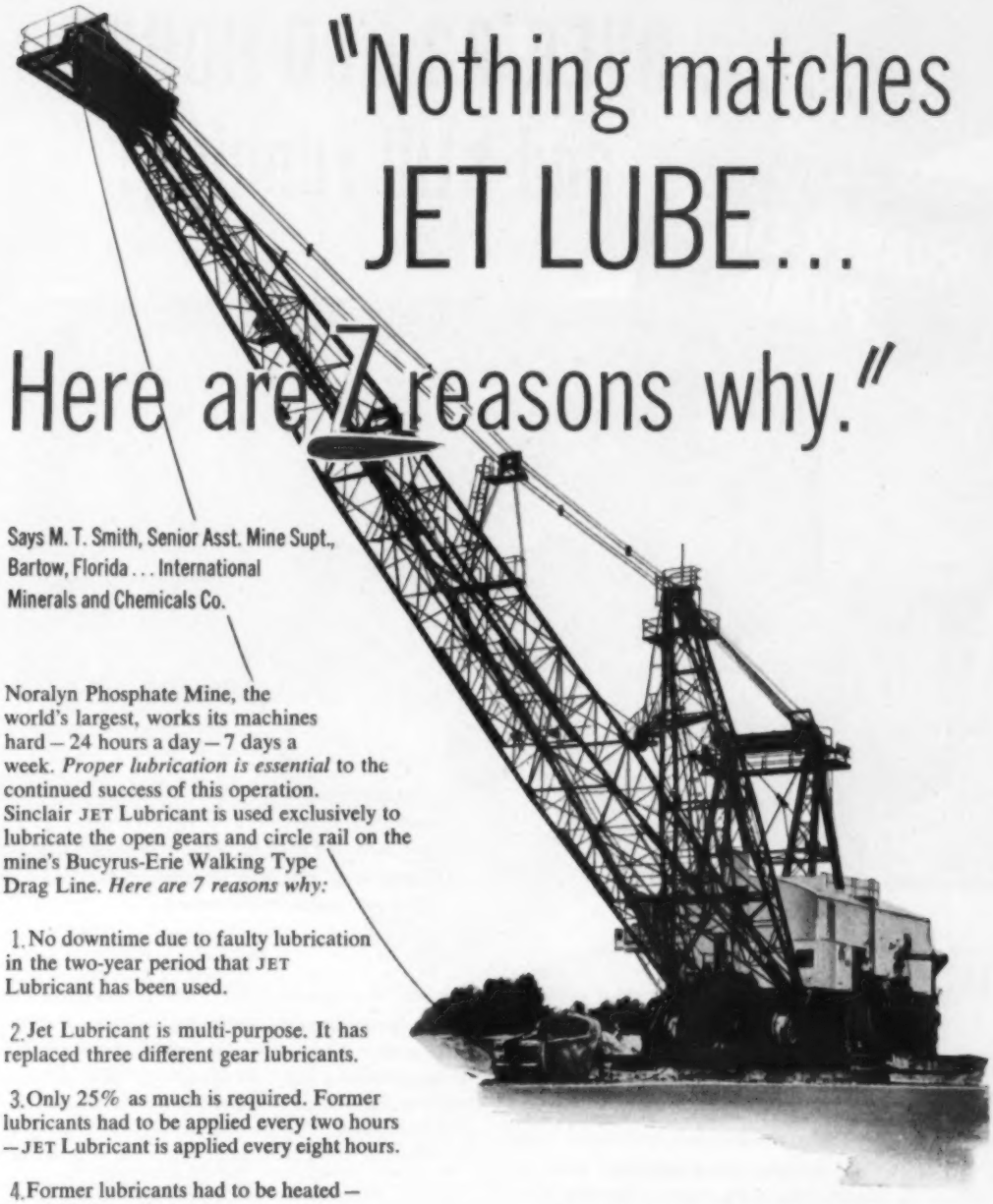


Says M. T. Smith, Senior Asst. Mine Supt., Bartow, Florida . . . International Minerals and Chemicals Co.

Noralyn Phosphate Mine, the world's largest, works its machines hard – 24 hours a day – 7 days a week. *Proper lubrication is essential* to the continued success of this operation. Sinclair JET Lubricant is used exclusively to lubricate the open gears and circle rail on the mine's Bucyrus-Erie Walking Type Drag Line. *Here are 7 reasons why:*

1. No downtime due to faulty lubrication in the two-year period that JET Lubricant has been used.

2. Jet Lubricant is multi-purpose. It has replaced three different gear lubricants.

3. Only 25% as much is required. Former lubricants had to be applied every two hours – JET Lubricant is applied every eight hours.

4. Former lubricants had to be heated – JET Lubricant does not.

5. JET Lubricant doesn't harden – former lubricants had to be scraped off during shutdowns.

6. JET Lubricant reduces inventory.

7. JET Lubricant eliminates any chance of misapplication.

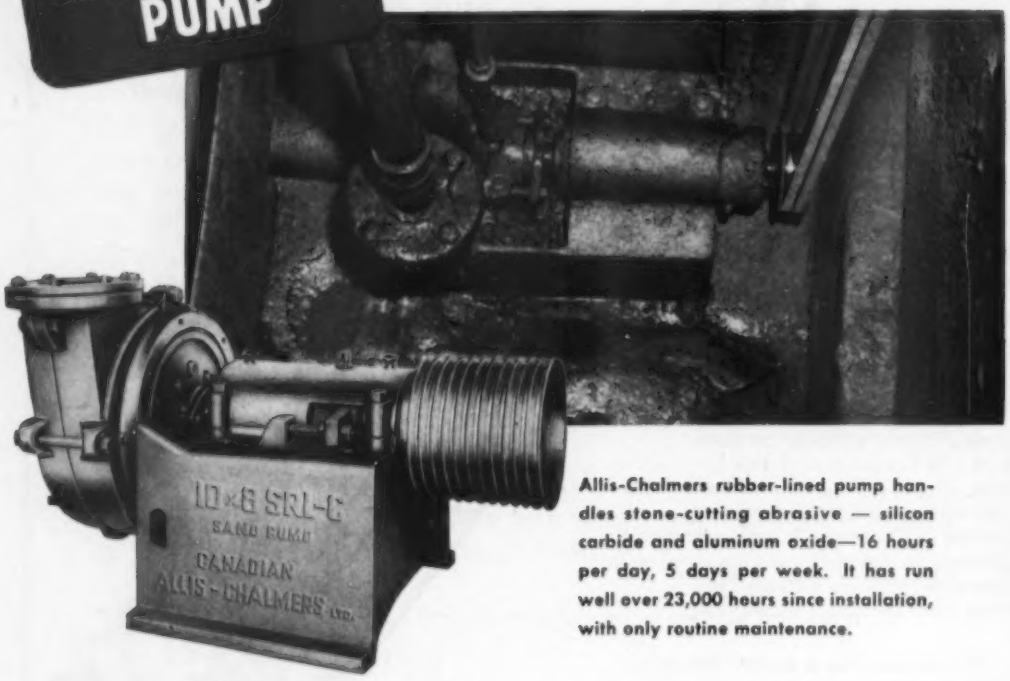
●There are *more* reasons why the right grade of JET Lubricant and other Sinclair products can improve your operations. Why not phone or write the nearest Sinclair Representative or write Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

SINCLAIR LUBRICANTS

. . . OVER 23,000 HOURS and still running!

(Best Previous Pump — 1040 Hours)

RUBBER-LINED PUMP



Allis-Chalmers rubber-lined pump handles stone-cutting abrasive — silicon carbide and aluminum oxide—16 hours per day, 5 days per week. It has run well over 23,000 hours since installation, with only routine maintenance.

PUMPING RECORDS like this are not unusual with the Allis-Chalmers rubber-lined pump. Service life up to 50 times that of the best alloy pumps is common. Pumping costs are greatly reduced because of reduced maintenance and repair costs and also because of fewer production interruptions and less lost production time.

Unique Lining Method

The rubber lining of the Allis-Chalmers SRL rubber-lined pump is bonded to a heavy steel skeleton which is bolted into the casing. This arrangement provides maximum support for the liners but makes them easy to remove when it is found necessary.

Each Installation Specially Engineered

Every pump is individually engineered to provide the best possible performance for the application involved. Special rubber linings of various compounds handle a wide variety of slurries at low cost per gallon pumped.

If you are handling sand, taconite, grinding mill discharge, tailings or any other abrasive slime or slurry and want longer pump life, see your Allis-Chalmers representative. Or write Allis-Chalmers, Milwaukee 1, Wis., and ask for Bulletin 08B7311.

A-3953

ALLIS-CHALMERS

ROCK RATED

with Built-In features to save you money

MODEL 1055 — 3½ yards
MODEL 955A — 2½ yards

Strength was no afterthought on this husky machine. It started on the drawing boards — with all-welded construction of tough rolled steels — with extra strength where strength is needed — with the ability to absorb continuous shock loads . . . and the stability to let you use full power for bigger production. It is the steady digging, without time-outs for pampering, that saves you money.

Add smooth hydraulic control to cushion operations and reduce operating fatigue, and you have the built-in advantages to make all kinds of rock work more profitable. The Model 1055 (3½ yard) and the Model 955-A (2½ yard) have proved it. Ask to see one on the job.

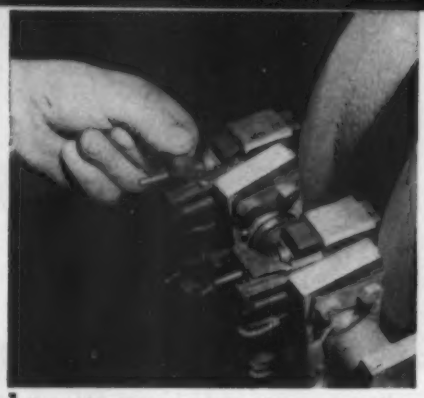
P&H MAGNETORQUE*

ELECTRIC SWING

gives you the slickest, fastest cycle you've ever known on machines of this size . . . from 15% to 25% faster than any others! And there are no delays for adjustments or replacement of swing frictions. Magnetorque eliminates all that — and lasts the life of your machine.

*T.M. of Harnischfeger Corporation for electro-magnetic type coupling.

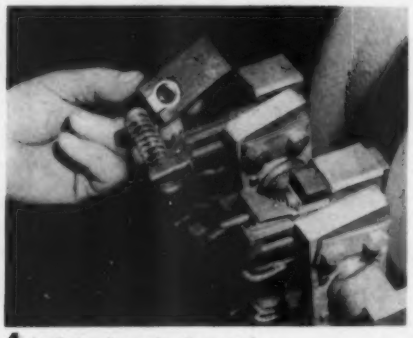
P&H LARGE EXCAVATOR DIVISION
HARNISCHFEGER CORPORATION
MILWAUKEE 46, WISCONSIN



1 To reset brush tension, operator releases spring lock . . .

2 slides it back to relieve pressure . . .

3 and swings locking device to one side . . .

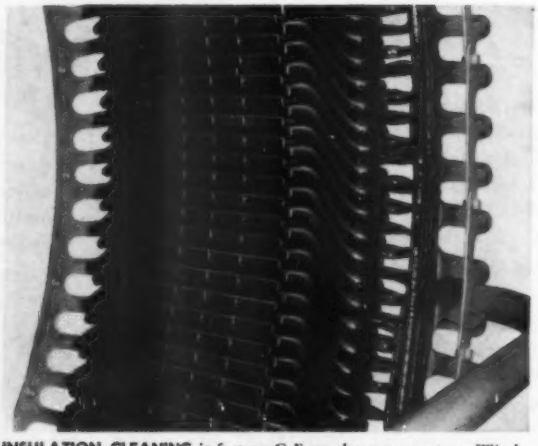


4 for fast and easy brush removal.

BRUSH-PRESSURE ADJUSTMENT, for maximum brush life, and replacement, to assure reliable motor service, are simple matters on G-E synchronous motors. A calibrated spring-loaded brush holder makes resetting brush tension or removal of brushes fast and easy. Brushes are staggered for even brush-ring wear.

See How Routine Maintenance Is

BEARING LUBRICATION can be readily checked through a large sight-level gage on the bearing pedestal; and when oil is required, handy snap-top covers are provided for easy refilling, as well as oil-ring inspection. A drain plug is conveniently located for quick oil changes.



INSULATION CLEANING is fast on G-E synchronous motors. Windings are coated with a high-gloss Glyptal* varnish that resists the accumulation of dust and can be vacuum or air cleaned in most applications. In extremely dusty or oily atmospheres, deposits can be easily wiped from the windings. Clean windings mean longer insulation and machine life.

*Reg. trademark of General Electric Co.

THIS G-E SYNCHRONOUS MOTOR, RATED 4500 HP, 300 RPM, DRIVES A RECIPROCATING GAS COMPRESSOR.

Easier on G-E Synchronous Motors!

Routine maintenance involves three factors: brushes, lubrication, and insulation. To be sure that these areas are properly serviced, G-E synchronous motors have design features that make checking easy and maintenance fast. Close at hand and easy to adjust, the brush-rigging construction encourages your maintenance men to inspect regularly. Oil-level gage and inspection caps are arranged for quick checking and filling when necessary. The high-gloss insulation on G-E synchronous motor windings resists the adhesion of dust and minimizes the need for cleaning.

These features promote long, reliable motor service and save valuable time for your maintenance crews.

Before selecting your next heavy-duty motor, be sure to consider these important maintenance features. Call in your G-E representative. He will be glad to discuss the many money-saving applications for G-E synchronous motors. Meanwhile, you can obtain more information on G-E synchronous motors by requesting the following publications: GEA-5332, "Low-speed Synchronous Motors" or GEA-5426, "High-speed Synchronous Motors." Write to Section 770-28, General Electric Company, Schenectady 5, N. Y.

You can put your confidence in—

GENERAL ELECTRIC

TIMELY
Sales-Opportunity
in MAY Issue of PIT AND QUARRY

16th ANNUAL LIME and AGRICULTURAL LIMESTONE SECTION

Special Advantages
for your Advertisement

- Extra long sales-life
- Extra high readership
- Coverage of top buying power
- Special editorial features condition the Advertising
- The entire section will also be mailed separately to all parts of the world.

The May issue of PIT AND QUARRY is held in keenest anticipation by readers because of its unique editorial treatment on the subject of Lime and Agricultural Limestone.

PIT AND QUARRY has long recognized the great importance of the Lime and Agstone Industries. Accordingly, the Limestone Section in May will be devoted to reports of the industry's progress in various sections of the country and to its problems and opportunities for increasingly profitable operation.

The May Limestone Issue will be filed as a reference Number, thus giving your advertisement extra long sales-life.

Limestone Plants need your Equipment . . . NOW

The potential machinery and equipment market in this field is so large it defies even reasonable estimation. Hundreds of plants need your equipment for expansion and replacement. Here's a buying-market for crushers, screens, conveyors, kilns, hydrators, bag-packing machines, hammer-mills, limestone spreaders — just to mention a few.

Your advertisement will be placed in the special section with the editorial content. Thus, the reader is editorially conditioned to your sales story. It's an opportunity to sell and serve.

PIT AND QUARRY

431 SOUTH DEARBORN ST., CHICAGO 5, ILL.

SIMPLICITY
WOVEN WIRE SCREENS

- ACCURATE
- DEPENDABLE
- AVAILABLE

Simplicity maintains big stocks of aggregate wire screens, already woven, in an adequate range of openings and a choice of wire gauges . . . edges formed promptly for any type vibrator. Excellent service.

Write for Bulletin No. 66

Simplicity
TRADE MARK REGISTERED
ENGINEERING COMPANY • DURAND, MICHIGAN

DREDGE SLEEVE CLAMPS
Sturdy • Practical • Dependable • Economical

Furnishes a positive seal for round flexible joints. Used by leading dredging and hydraulic sand-and-gravel operators, and the U.S. Engineering Corps. This Multi-use chain sleeve clamp is easy to apply... positive in action. Write for illustrated folder, today.

THE BLACK BROTHERS CO., INC.
9th Ave. at 4th, Mendota, Illinois

PIT AND QUARRY

Research Department

431 So. Dearborn St., Chicago, Ill.

Please send me catalogs and Prices concerning the following items checked below:

- ☐ Admixtures, Concrete
- ☐ Agitators, Slurry
- ☐ Aggregate-Bituminizing Plants
- ☐ Air Cleaner
- ☐ Air Compressors
- ☐ Asphalt Mixing Plants
- ☐ Asphalt Mixers
- ☐ Bag Filling and Weighing Machinery
- ☐ Bags, Cloth
- ☐ Bags, Paper
- ☐ Balls, Steel
- ☐ Barges, Steel
- ☐ Batching Equipment
- ☐ Belt Dressing
- ☐ Belt Fasteners
- ☐ Belting, Conveyor and Elevator
- ☐ Belting, Transmission
- ☐ Belt Tighteners
- ☐ Bin Gates
- ☐ Bins
- ☐ Blasting Powder
- ☐ Blocks, Friction
- ☐ Bodies, Motor Truck
- ☐ Buckets, Clamshell
- ☐ Buckets, Conveyor and Elevator
- ☐ Buckets, Dragline
- ☐ Buckets, Orange Peel
- ☐ Cableways, Blackline
- ☐ Calcining Machinery
- ☐ Caps, Blasting
- ☐ Car Dumpers
- ☐ Car Pullers and Movers
- ☐ Carriers, Belt
- ☐ Cars, Dump
- ☐ Cars, Kiln
- ☐ Castings
- ☐ Cement Colors
- ☐ Cement Plants, Bulk
- ☐ Chains, Conveyor and Elevator and Drags
- ☐ Chains, Power Shovels, Cranes
- ☐ Chains, Transmission
- ☐ Classifiers
- ☐ Clutches
- ☐ Clutches, Magnetic
- ☐ Concrete Block Machines
- ☐ Concrete Brick Machines
- ☐ Concrete Joint Machines
- ☐ Concrete Stave Machines
- ☐ Concrete Plants, Ready Mix
- ☐ Cones, Washing
- ☐ Connectors, Wire Rope
- ☐ Conveyors, Apron
- ☐ Conveyors, Belt
- ☐ Conveyors, Concrete
- ☐ Conveyors, Screw
- ☐ Conveyors, Skip
- ☐ Coolers
- ☐ Coupling, Flexible
- ☐ Cranes, Locomotive
- ☐ Cranes, Overhead Travelling
- ☐ Cranes, Truck
- ☐ Crushers, Cone
- ☐ Crushers, Gyratory
- ☐ Crushers, Hammer
- ☐ Crushers, Jaw
- ☐ Crushers, Ring
- ☐ Crushers, Roll
- ☐ Cutter Heads, Dredging
- ☐ Derricks
- ☐ Draglines, Cableway
- ☐ Draglines, Revolving Boom
- ☐ Dredges, Hydraulic
- ☐ Dredges, Ladder
- ☐ Drills, Air
- ☐ Drills, Blast Hole
- ☐ Drills, Diamond
- ☐ Drills, Hand Hammer
- ☐ Drills, Sharpening Machinery
- ☐ Dryers, Rotary
- ☐ Dust Collecting Systems
- ☐ Dynamite
- ☐ Elevators, Bucket
- ☐ Engines, Diesel
- ☐ Engines, Gasoline
- ☐ Engines, Hoisting
- ☐ Explosives
- ☐ Feeders
- ☐ Filters
- ☐ Filters, Oil
- ☐ Fire Brick
- ☐ Frogs and Switches
- ☐ Fuses, Blasting
- ☐ Fuses, Detonating
- ☐ Gears
- ☐ Grease
- ☐ Grinding Balls
- ☐ Grizzlies
- ☐ Guns, Hydraulic
- ☐ Hardfacing Alloys
- ☐ Hoists
- ☐ Hoists, Skip
- ☐ Hose, Air, Water
- ☐ Hose, Suction
- ☐ Hydrators, Lime
- ☐ Idlers, Conveyor
- ☐ Kettles, Calcining
- ☐ Kilns, High Pressure Steam
- ☐ Kilns, Rotary
- ☐ Kilns, Vertical
- ☐ Lift Trucks
- ☐ Lime Putty Plants
- ☐ Lining, Kiln
- ☐ Loaders
- ☐ Loaders and Unloaders, Box Car
- ☐ Locomotives, Diesel
- ☐ Locomotives, Gasoline
- ☐ Locomotives, Steam
- ☐ Log Washers
- ☐ Lubricants
- ☐ Motors, Water
- ☐ Mills, Ball
- ☐ Mills, Compartment
- ☐ Mills, Tube
- ☐ Mixers, Concrete
- ☐ Molds, Concrete
- ☐ Motors, Electric
- ☐ Motor Trucks, Ready-Mixed Concrete
- ☐ Nozzles
- ☐ Nozzles, Spray
- ☐ Oil Bearers, Pneumatic
- ☐ Oilers, Pellet
- ☐ Pallets, Concrete Block
- ☐ Perforated Plate
- ☐ Pipe, Spiral Welded
- ☐ Pipe
- ☐ Pedometers
- ☐ Pulleys, Clutch
- ☐ Pulleys, Magnetic
- ☐ Pulverized Fuel Systems
- ☐ Pulverizers, Ball, Conical, Pebble
- ☐ Pulverizers, Hammer
- ☐ Pulverizers, Ring
- ☐ Pulverizers, Rod
- ☐ Pulverizers, Roll
- ☐ Pumps, Centrifugal
- ☐ Pumps, Deep Well
- ☐ Pumps, Dredge
- ☐ Pumps, Slurry
- ☐ Rails
- ☐ Refractories
- ☐ Rolls, Crushing
- ☐ Rope, Wire
- ☐ Safety Appliances
- ☐ Saws, Masonry
- ☐ Scales, Batching
- ☐ Scales, Moisture Meter
- ☐ Scales, Track
- ☐ Scales, Track
- ☐ Scales, Truck
- ☐ Scrapers, Dragline
- ☐ Screens, Revolving
- ☐ Screens, Shaking
- ☐ Screens, Vibrating
- ☐ Separators, Air
- ☐ Separators, Dry Centrifugal
- ☐ Separators, Magnetic
- ☐ Shovels, Diesel
- ☐ Skips
- ☐ Sleeves, Dredge
- ☐ Slugs and Balls, Grinding
- ☐ Speed Reducers and Gears
- ☐ Sprockets
- ☐ Stokers
- ☐ Tanks, Concrete and Steel
- ☐ Tanks, Sand Settling
- ☐ Testing Equipment
- ☐ Thickeners, Slurry
- ☐ Track, Portable
- ☐ Track, Shifters
- ☐ Tractors, Crawler
- ☐ Tramways, Aerial
- ☐ Trippers, Belt
- ☐ Trippers, Tramway
- ☐ Unloaders
- ☐ Valves
- ☐ Vibrators, Electric and Air
- ☐ Washers and Scrubbers, Sand, Gravel, Stone
- ☐ Weighers, Automatic
- ☐ Welding Machines
- ☐ Welding Rods
- ☐ Wheel Cars
- ☐ Winches
- ☐ Wire Cloth

Firm Name.....*Individual*.....

Address.....*City*.....*State*.....

Here is the ANSWER to your MAGNETIC SEPARATOR JOBS!

HOMER "POWER-PLUS" MAGNETIC SEPARATORS

PERMANENT non-electric—Unaffected by HEAT, COLD or MOISTURE

CAN BE USED INSIDE OR OUTSIDE PLANT

HOMER PULLEY

HOMER MAGNETIC PULLEYS AND PULLEY UNITS— Available in standard diameters from 12" to 30"; belt widths 4" to 60". Special sizes upon order.

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HOMER MAGNETIC PLATES— Available in standard widths from 4" to 26"; lengths and number of poles as required. Special fabrications to your specifications.

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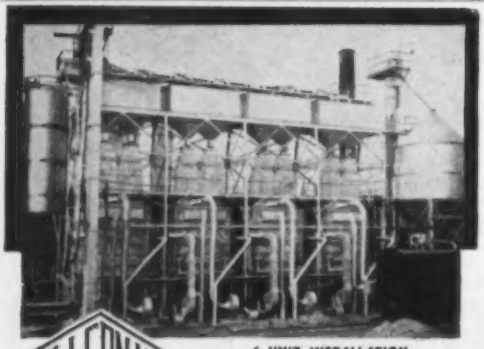
Write for descriptive bulletins

THE HOMER MANUFACTURING CO. INC., DEPT. I-52, LIMA, OHIO



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4 UNIT INSTALLATION

CALCINER

For Burning LIMESTONE, DOLOMITE, etc.

2 SIZES AVAILABLE

PREHEATS-CALCINES-COOLS

AUTOMATIC CONTINUOUS OPERATION

MINIMUM FUEL CONSUMPTION

There are extra dividends available in the operation of your plant when you use Ellernan Calciners . . . let us explain the exclusive features . . . write today for literature and detailed information applicable to your operation.

THE ELLERNAN CO.

Continental Bank Bldg. Salt Lake City, Utah

LOW COST CRUSHING POWER

for fast "secondary breakage"

use FREDERICK CAST semi-steel BALLS

Tough and rugged, Frederick Wrecking Balls deliver crushing power where you need it. They're made to stand abuse—to give you long, economical service. Inverted steel eye gives cable protection plus free-swinging action. Special release hooks for free dropping also available. Shipments made promptly from stock of these sizes: 500 lbs., 1000 lbs., 1500 lbs., 2000 lbs., 3300 lbs., 4000 lbs., 5000 lbs., 6500 lbs., 8000 lbs. (Other weights if requested)

Write today for prices; send order direct or phone us now.

FREDERICK IRON & STEEL, INC.

FREDERICK *Since 1890* MARYLAND

CENTRIFUGAL PUMPS • MUNICIPAL & GRAY IRON CASTINGS

Make *BELT SPLICING*

A "ONE MAN" JOB!

With the TENNEFOS BELT SPLICER, one man can splice TROUGH-TYPE, flat drive and conveyor belts quickly . . . easily. No special tools needed . . . available in any desired width and made to fit the various trough-type rollers. Write today for full information — find out how much time, labor, money a TENNEFOS BELT SPLICER can save YOU, day after day. Drop us a card for literature, prices RIGHT NOW!

TENNEFOS MANUFACTURING CO.

Dept. P-4 Moorhead, Minn.

Advertise Your

"Wants" and

Surplus Equipment

ARMSTRONG-BRAY
GEAR and WHEEL PULLERS

Quickly and easily pull gears, wheels, pulleys and bearings off of shafts without damage or breakage.
Improved designs make them easy to set up and safe in use—the harder the pull the tighter the grip.
12 types, 60 sizes—2-arm, 3-arm, standard and special STEELGRIP Pullers with drop forged arms and heat treated screws as well as CHAINGRIP Universal Pullers that reach to considerable distances from end of shaft.
Write for Catalog
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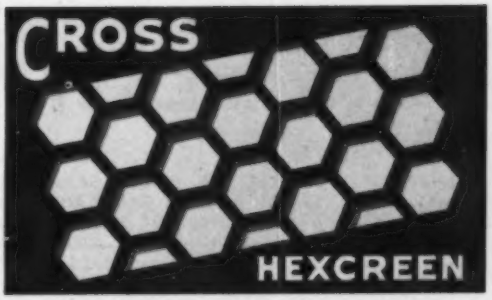
CHICAGO 30, U.S.A.

CROSS



For SUPER-SERVICE SCREENING

***you can't match* CROSS**

PERFORATED STEEL PLATES and SECTIONS

CROSS Screens insure maximum output of accurately sized materials, produced on a minimum cost basis. CROSS is the "pacemaker" for quality Vibrating, Shaking and Revolving Screens.

Look for this Stamp on all "Cross" Products

the sign of PLUS QUALITY for PLUS PERFORMANCE

Write for Descriptive Literature

CROSS ENGINEERING COMPANY
Manufacturers • Carbondale, Pennsylvania • Tel.: 300

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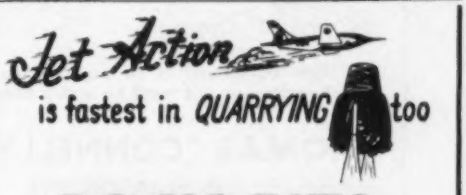
Typical of Galion heavy duty rock bodies is this 7 cu. yd. with full size cab protector, reinforced with structural steel channel and angle.

● If you need dump truck equipment that is built to take a beating day after day without downtime . . . that will work longer with less maintenance and operating cost . . . that you can be proud to own and operate . . . you should become a Galion user—right away!

There's a standard Galion model to meet virtually every need of every quarry contractor. But, if you need extra heavy duty units for jobs that are tougher than tough, Galion will be glad to design and build them to your specifications. Just see your nearest Galion distributor—today!

A-0733

THE GALION ALLSTEEL BODY COMPANY
GALION • OHIO



ROCK BITS
for Rotary Drilling

Quarries like VAREL ROCK BITS for their—

DURABILITY . . .
. . . DEPENDABILITY . . .
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— Write for Brochure & Price List —

Advisory Quarry Service . . .
. . . Available in All Territories

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BROADCAST P&Q SECTION

PIT AND QUARRY • 431 S. DEARBORN ST. • CHICAGO 5, ILL.

ADVERTISING RATE PER ISSUE: $8 A COLUMN INCH. LOWER RATES FOR LARGER SPACE USED AND/OR ON A CONTRACT BASIS. WRITE FOR RATE CARD.

CLOSING DATE: 20th OF THE MONTH PRECEDING DATE OF PUBLICATION

Quarries
Crushing Plants
Cement Plants
Storage Methods
Operating Costs

E. Lee Heidenreich, Jr.
Consulting Engineer
75 Second St.
Newburgh, N. Y.
Phone: 1828

9 South Clinton St.
Chicago 6, Ill.
Ph. FR 2-4186

Operation
Plant Layout
Design
Construction
Appraisals

WANTED

Crushing Rolls

Pioneer 24x54 triple roll or equivalent
Pioneer 24x54 twin roll or equivalent

Screens

Large heavy duty Scalper—Robbins or Pioneer
2 and 3 deck heavy duty Sizing—Robbins or Pioneer
24" and 30" Conveyors

This equipment is to be used on open hearth slag and must be in top condition.

THOMAS CONNELLY CO.
1240 STANTON AVE.
WHITING, INDIANA

Royal E. Burnham

Attorney at Law

Patent and Trade-Mark Causes

3201 Tennyson Street, N.W.
WASHINGTON 15, D. C.

CORE DRILLING
ANYWHERE
We look into the earth
PENNSYLVANIA
DRILLING COMPANY
PITTSBURGH 20, PA.

WANTED
CRUSHING JOB

We wish to contact highway, airport, military and government area contractors using crushed rock. Complete portable plant and all accompanying equipment available July 1st. Capacity 1500 to 2000 tons per day. What have you?

BOX NO. EN-65
c/o PIT AND QUARRY PUBLICATIONS
431 S. Dearborn St., Chicago 5, Ill.

WANTED

Distributor, Mill Supply House, Manufacturer or Manufacturers' Agent presently contacting sand and gravel and crushed stone trade to represent manufacturer of processing equipment. Inquiries confidential.

BOX NO. CL-42 c/o PIT & QUARRY PUBLICATIONS
431 S. DEARBORN ST. CHICAGO 5, ILL.

WANTED

1—36"x8' apron feeder with clutch and gears. Please state price, location, and condition in reply. Also 1-VF4 Wisconsin motor with clutch and back gear.

ROSCOE FRANCKE
Hanover, Illinois

ROCK PRODUCTS PLANT OR MACHINES WANTED

Including Rotary Kilns, Direct Heat Dryers, Pulverizers, Crushers, Ball Mills, Vibrating Screens, Power Shovels and Cranes, Bucket Elevators and Conveyors, Filters, Diesel Engines.

P.O. Box 1351, Church Str. Sta.
New York 8, N. Y.

MECHANICAL ENGINEER

Opportunity for experienced mechanical engineer to join long established company in midwest. Products sold throughout the world. Excellent employee benefits. Must be capable of supervising design and developments of major equipment used in mining, crushing and cement industry operations. Replies treated confidentially. Give experience, age, references and salary requirements.

BOX No. CL-47
c/o PIT AND QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

WANTED TO BUY

Small used portable screening and crushing plant.

SACK BROS., INC.
601 Eleventh Street
Jamestown, New York

GRANULES

Wanted: Engineers and Chemists thoroughly experienced in plant design, manufacturing and coloring of roofing granules by well established company not now in this business. Replies strictly confidential.

BOX NO. EN-64, c/o
PIT & QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

Chicago Daily News Photo

JOBS FLOODED OUT? BE PREPARED FOR SPRING FLOODS — RENT OR BUY YOUR PUMPS FROM ECA. We have a large supply — all kinds — all sizes. You name it — we have it, for RENT or SALE. Check list below.

PUMPS, CENTRIF., GASOLINE

1—8" Gorman Rupp, Mdl. H18, Hercules Mdl. JXB gas eng., 125,000 GPH @ 25' hd.

1—6" Carter "Humdinger", direct connected 85 HP Ford V-8 gas eng., cap. 1500 GPM @ 25' hd.

2—6" C.M.C. Hercules gas eng., Mdl. QXC-5, cap. 90,000 GPH @ 25' hd.

1—4" Rex 250M, 4 cyl. Wauk. gas eng., 750 GPM @ 25' hd.

1—3" Marlow, 3½ HP "Mercury" eng., 115 GPM @ 16'.

PUMPS, CENTRIF., ELECTRIC

1—12" Dayton Dowd, vert., 50 HP 3/60/220/440 motor. Cap. 6,000 GPH @ 13'; 4250 GPH @ 25'.

1—6" Ing. Rand size 8LFV, 50 HP 220/440/3/60, cap. 2,000 GPM @ 80' hd.

1—4" suc., 2" disch. Weinman, 7½ HP 3/60/220/440. Cap. 420 GPM @ 40'.

AIR COMPRESSORS

Portable, 2-Stage

2—500' Ing. Rand, Waukesha gas engine and Wauk.-Hesselman Diesel engine, pneu. tires or steel wheels. Excel. buys.

WE HAVE A LARGE STOCK OF COMPRESSORS, FROM 50 TO 500 CU. FT., GAS, ELECTRIC AND DIESEL DRIVEN.

BUCKET, CRESCENT TYPE

1—2 yd. Crescent Dragscraper Bucket, excellent shape. Special low price.

CAR PULLER

1—Mead Morrison #952, 7½ HP 3/60/220 motor to handle 1 to 5 loaded cars.

CRANES, LOCOMOTIVE

1—30 ton Mdl. F OHIO, 50' boom, oil fired. Nat'l. Board 200# boiler.

1—25 ton Industrial Brownhoist Type G, 40-50-60' boom, Nat'l. Board 150# boiler.

DERRICKS

1—30 ton Wiley Mdl. F Steel Stiffleg, 60-80-100' boom, 30 ton @ 30', 15 ton @ 57'.

1—10 ton Stiffleg Derrick, with 70' boom, 25' mast, 12' bullwheel.

GENERATORS — LIGHT PLANTS

1—31.25 KVA 25 KW Westinghouse 208/120/3/60, direct connected to Le Roi 71.5 HP gas eng. Wt. 4500#.

1—7½ KW DC 220 volt Engberg steam driven generator.

1—75 KW Diesel Generator, 220/440/60/3, power Cat. D-13000 Diesel eng., with gas starting eng. and control panels. Generator completely rewound. LATE MODEL, SAVE THOUSANDS OF $$$$$ FROM COST NEW PRICE. EXCELLENT SHAPE.

HOISTS, ELECTRIC

1—100 HP American 3/drum #1888M, 3/60/440, 9,000# @ 275 FPM, attached Lidgerwood swinger.

2—Mdl. T3 3/drum American, 75 HP Fairbanks Morse 3/60/220/440 motor. 7,500# line pull at 280 FPM. Late Model, like new.

3—60 HP Thomas 2/drum attached swinger, 2 powered by 60 HP GE slipring motor, 220/440/60/3, one w/o power, 7,000# line pull @ 195 FPM.

1—40 HP National 1/drum 2/60/220, 3,500# @ 350 FPM. Wt. 7000#.

1—50 HP Mundy 2/drum #15691, w/National 2 spool attached swinger, 3/60/440. 7,000# @ 195 FPM. Wt. 12,000#.

HOISTS, STEAM

8½x10 2/drum Lambert w/space for boiler. Drums 14x25x7".

9x10 2/drum Lambert, skeleton type, drums 14x24x7½".

10½x12 2/drum Lambert, w/space for boiler. 1 drum 24x34x8" — line pull 9,000#. Other drum 16x24x11" — line pull 13,000#.

8x12 3/drum Mundy, 9,500# single line. Wt. 11,000#.

7x10 2/drum Lidgerwood, 5,000# single line. Wt. 7,000#.

THIS MONTH'S SPECIALS

CRAWLER CRANES

1—¾ yd. Mdl. 375 American Combination Crane and Shovel, Ser. GS-419. Crane boom 40'. Shovel attachment with ¾ yd. dipper. Power Cat. D4600 Diesel engine. An excellent buy.

1—#3 Northwest Crane, Ser. 4603, with 40' boom, Wisconsin gas engine.

1—¾ yd. mdl. 255-A P&H crane, Ser. 5750, power 6 cyl. Waukesha gas eng. 35' boom. Completely rebuilt.

1—Mdl. 501 Koehring #1071, 40-70-80' boom, 18' jib, Mdl. K Wisc. gas eng. Cap. 40,000# @ 12'. Shpg. wt. 97,200#.

1—1¼ yd. Bucyrus Erie Mdl. 33-B, Ser. 16502, 8 cyl. "V" type LeRoi gas eng. (eng. new 1948). 50' boom.

1—1½ yd. P&H 455-A Diesel Crane or Dragline, Ser. 6426, 75' boom, 20' jib, with Cat. D-13000 Diesel eng., hi gantry. Wt. 82,900#. Rental only.

1—1¾ yd. Link Belt Mdl. 370 Diesel Crane or Dragline, 90' boom, hi gantry, Cat. D-13000 Diesel eng., long & wide pads. Rental only.

1—2½ yd. P&H Mdl. 955-Lc, Ser. 5309, Cat. D-17000 Diesel eng., 100' boom, 1½ KW light plant, taglines. Operate either from cab or remote control 32' hi tower. Ideal for coal dock or similar work. Excel. condition.

All this equipment is owned by us and may be inspected at one of our show rooms.

WE BUY • REBUILD • SELL AND RENT ***PARTIAL LIST ONLY • SEND FOR OUR STOCK LIST***

CHICAGO 12, ILL.
1160 S. Washtenaw Ave.
NEvada 8-2400

PITTSBURGH 30, PA.
Box P-933
FEderal 1-2000

ECA
EQUIPMENT CORPORATION OF AMERICA

CLIFTON HEIGHTS, PA.
Box P-608, Suburb of Phila.
MAdison 6-2200

NEW YORK 7, N. Y.
30-P Church St.
WOrth 2-0036

BUY WITH CONFIDENCE FROM A LONG ESTABLISHED COMPANY With AAA-1 Rating

Our 36th Year

ROTARY KILNS:

2—7' x 60' Calciners, made by Struthers Wells. Each 9/16" shell, Timken roller bearing supports, L-B gear reducer, with V-belted AC motor, firing hood, seal ring, one with Manitowoc Recuperator, in excellent condition.

1—6'6" I.D. x 12' Rotary Nodulizer or Furnace, ¾" shell, Timken roller bearing rolls, gear reducer and motor drive, scraper conveyor, feeder, etc.

ROTARY DRYERS:

1—8' x 54' Struthers-Wells, Timken roller bearing supports, gear reducer, 40 H.P. motor, furnace, burner, etc. ....

8—6' x 40', 5' x 40' Ruggles-Coles; 54" x 25' Class Xf-4 Ruggles-Coles, also 3—3' x 50', x 5' x 50', 6' x 60', 7' x 70' Direct Heat. Also 3—6' x 90' Louisville Rotary Steam Tube.

3—4' x 50' Rotary D. H. Dryers or Coolers.

6—Link Belt Roto-Louvre Dryers: #207-10 (2' x 7" x 10') #510-16, #503-10, #604-20, two #604-24.

CRUSHERS:

Jaw—2" x 6", 6" x 45" Sturtevant; 18" x 36" and 24" x 36" Farrel; 42" x 48" Traylor; Rolls: 42" x 16" Allis-Chalmers Type B; 24" x 32" Penna. single roll. Portable Plants—Cedar Rapids 1036-BBB; 2540-AAAA, 2036-AAA, also Pioneer with 30" x 42" primary and secondary crushers, all Diesel driven.

PULVERIZERS:

1—5 roll Raymond High Side.

6—#1, #0, #00, #000 Raymond Mills.

1—#0, #00, 8" Raymond Screen Mills.

2—#51 Raymond Imp Mills.

2—Mikro #2TH, #4TH.

BALL AND TUBE MILLS:

6—Hardinge Mills, 3' x 8", 5' x 22", 6' x 22", 8' x 48".

4—Tube Grinding Mills, made by Traylor E. & M. Co. Allentown, Pa. Silex lined, 4' x 13', 4'6" x 18'6", 5' x 22' and 5' x 20'. Also 2—5'6" x 20' iron lined, with motors.

8—Pebble Mills, porcelain lined; 3—6' dia. x 8'. 800 gals. each. 1—6' x 5', 3—5' x 4', each with ball charge.

AIR SEPARATORS:

2—Raymond 6' and 16' dia.; 1—8' Gayco; 1—16' Sturtevant.

VIBRATING SCREENS:

3—Selectro 3' x 8' 2-deck; 1—3' x 8', 1-deck, all totally enclosed, heavy duty.

1—3' x 6' Colorado Iron Works, 1-deck.

2—4' x 10' Tyler Niagara, 2-decks.

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2—2 stage Washing Classifiers, each with two rakes in tandem, in steel trough 26'6" long x 3' wide, with drives.

1—6' x 14' Hardinge Rotary Counter Current Classifier, also used for dewatering and scrubbing.

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9—Elec. Shovels, 17, 10, 9, 4, 2 & 1 Yd.
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3—25 & 40 Ton 120 Ft. Boom Whirleys.
7—Loco. Cranes 20, 25, 30 & 40 Ton Diesel & Steam.
9—Diesel Shovels & Cranes, 1 to 5 Yds.

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6—10 Ton Phoenix Quarry cars-std. ga.

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Hardinge 5'x22", 6'x22", 8'x22", 10'x36" & 10'x48".
Ball Mills 6x6, 6x10, 7x6 & 6x6.
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Hercules Junior 3 Roll Mill.
#1 & 3 Raymond Automatic.
B&W and Riley Coal Pulverizers.
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5', 8', 14' & 16' Air Separators.
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Nordberg 7"—10"—14"—Kennedy 19S, 25S, 37S—Sup. McC. 6"—A1. Chal. 322B, 222R, 530R—Traylor TY 36".

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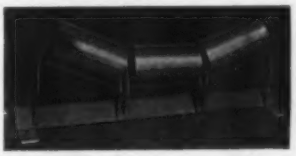

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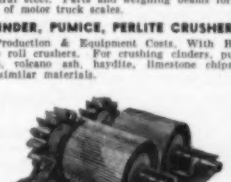

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36 INCH	1—160'—2—250'—1—320'—	
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	1—1600' Long.	
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1 for 24 In. 8 for 30 or 36 In.
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3 Ft. Traylor TY Reduction.
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1—14,000# Allis-Chalmers, Sgl Drum
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1— 5,000# Jeffrey Carspotter AC
1— 6,000# Brownie Carspotter AC
1— 5,000# Link-Belt Carspotter AC
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1—Huber 10 ton, 20" rear wheels, 39" front roll, good condition.$1500

1—Burke 75 KW Generator powered with UD18 Diesel International motor driven with 11 V belt drive, late model.....$3750

1—Case Gasoline 65 H.P. LAE engine with clutch, pulley, 50' belting 10" wide.....$ 700

1—Caterpillar D. 13000 engine, open type clutch, Ser. 282062.$2250

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1—Ty-Rock 4' x 10' 3-deck Vibra Screen with 13 sections, Screen new, never used. New price near $5000. Type F600 3-surf S/N 4544. Our price $3900. Guaranteed condition with 10 H.P. 1800 RPM 220-volt 3 ph. 60 cycle motor. Above subject to prior sale.

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1—PD80 International Diesel
1—125 HP Vert. 150 lb. Boiler

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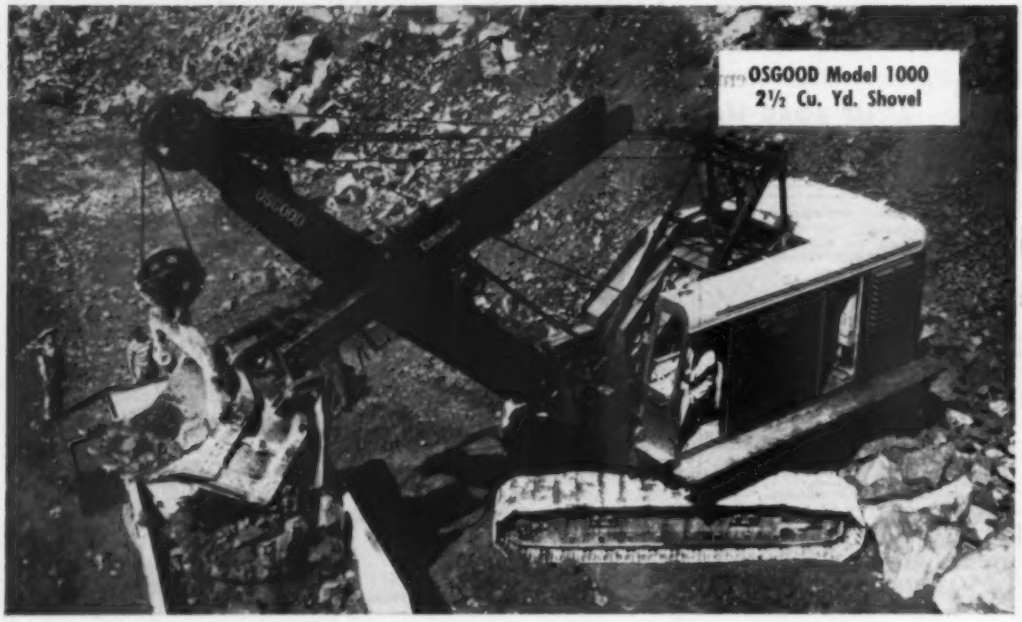
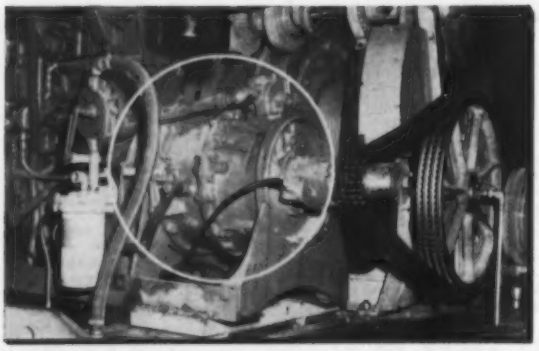


OSGOOD EXCAVATORS with Torque Converters pay for themselves quickly from increased output



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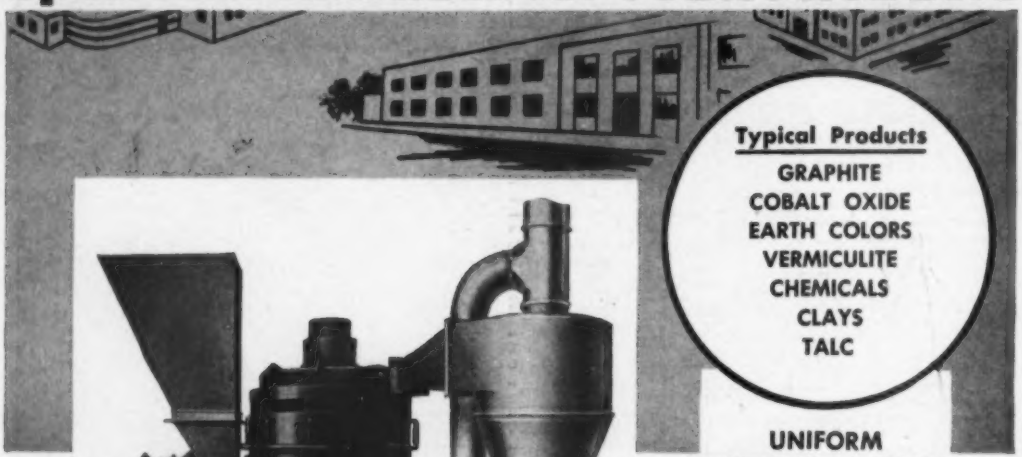

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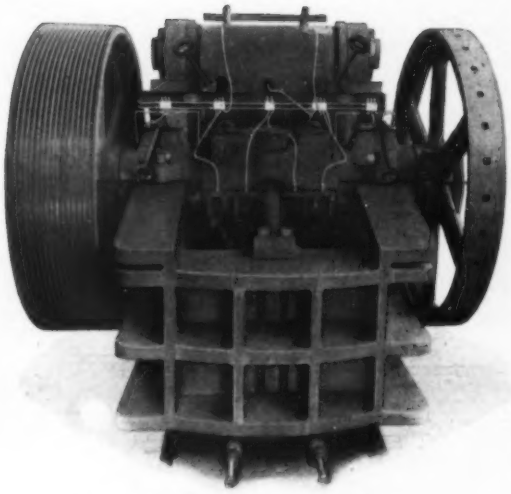
Dust-proof lubrication of Traylor jaw crusher insured by Farval

FARVAL—*Studies in Centralized Lubrication* No. 141



KEYS TO ADEQUATE LUBRICATION—Wherever you see the sign of Farval—the familiar valve manifolds, dual lubricant lines and central pumping station—you know a machine will be properly lubricated. Farval manually operated and automatic systems protect millions of industrial bearings.

Photo of Farvalized jaw crusher by courtesy of Traylor Engineering Company.

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There's a specific Farval system suitable for almost any type and size machine. For information and help, consult the Farval engineer who's near you to serve you. Or write for Bulletin 26. You'll be amazed at the savings in labor, lubricant, and increased bearing life Farval can bring. The Farval Corporation, 3280 E. 80th St., Cleveland 4, Ohio.

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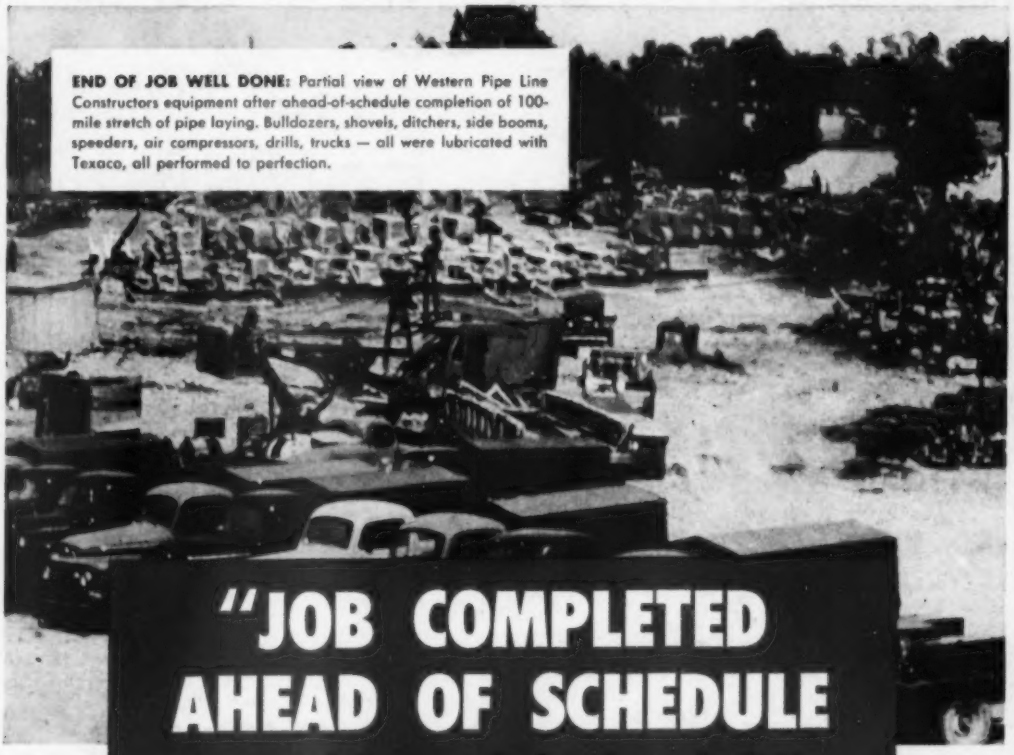

END OF JOB WELL DONE: Partial view of Western Pipe Line Constructors equipment after ahead-of-schedule completion of 100-mile stretch of pipe laying. Bulldozers, shovels, ditchers, side booms, speeders, air compressors, drills, trucks — all were lubricated with Texaco, all performed to perfection.

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. . . and Texaco helped us do it"

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